OEIV 4P20 / BIOL 5P20
Library Seminar
Fall 2024

Ian Gordon

OEVI 4P20 Library Seminar

Ian Gordon, Teaching & Learning Librarian

Brock University Library

Course Calendar Description:

Measurement techniques used in the sensory evaluation of wine and consumer science, physiology of taste and olfaction, chemistry of aroma and flavour, and readings in current topics in sensory evaluation and sensory science.

Additional Description:

Welcome! This course is intended for students interested in sensory evaluation of wines. The principles of sensory evaluation and sensory science are introduced in lectures, with an emphasis on sensory methodologies and tests. Laboratories will familiarize students with the variety of sensory methods available, as well as provide some opportunities for the development of individual palates.

Learning Objectives/Outcomes:

- To develop an understanding of the psychological and physiology factors affecting sensory perception and sensory evaluation
- To develop a high level of understanding of the range of sensory tests available and their relative strengths and weaknesses
- To develop an understanding of the statistical methods used in sensory science
- To develop the tools needed to meet sensory challenges in the wine and food industries
- To increase appreciation of the diversity of both wine style and palates that exist and be aware of the factors that contribute to this diversity

- To appreciate and understand physiological, psychological and environmental factors that can affect wine flavour and perception, and the methods used to mediate extraneous influences

Library Seminar Agenda

- Top 10 resources you should know about!
- Brock Library OEVI Library Research Guide
- Scholarly databases – lots of them!
- Citation management
- Where, how and when to get help

Library Seminar Agenda

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- Brock Library OEVI Library Research Guide
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- Citation management
- Where, how and when to get help

Top 10 resources you should know about!

1. Brock Library Oenology and Viticulture Research Guide
2. zoterobib – citation citing
3. Zotero – citation management software
4. Omni, borrowing from Other Libraries / Interlibrary Loans
5. Google, Advanced Google, Google Books, & Google Scholar
6. Open, proprietary, alternate and AI-driven databases – going forward into practice
7. The business, psychology, health, chemistry, agricultural… side of oenology, viticulture, wine appreciation…
8. Standards, patents and intellectual property content
9. When, where and how to get help!
10. How to book a consultation

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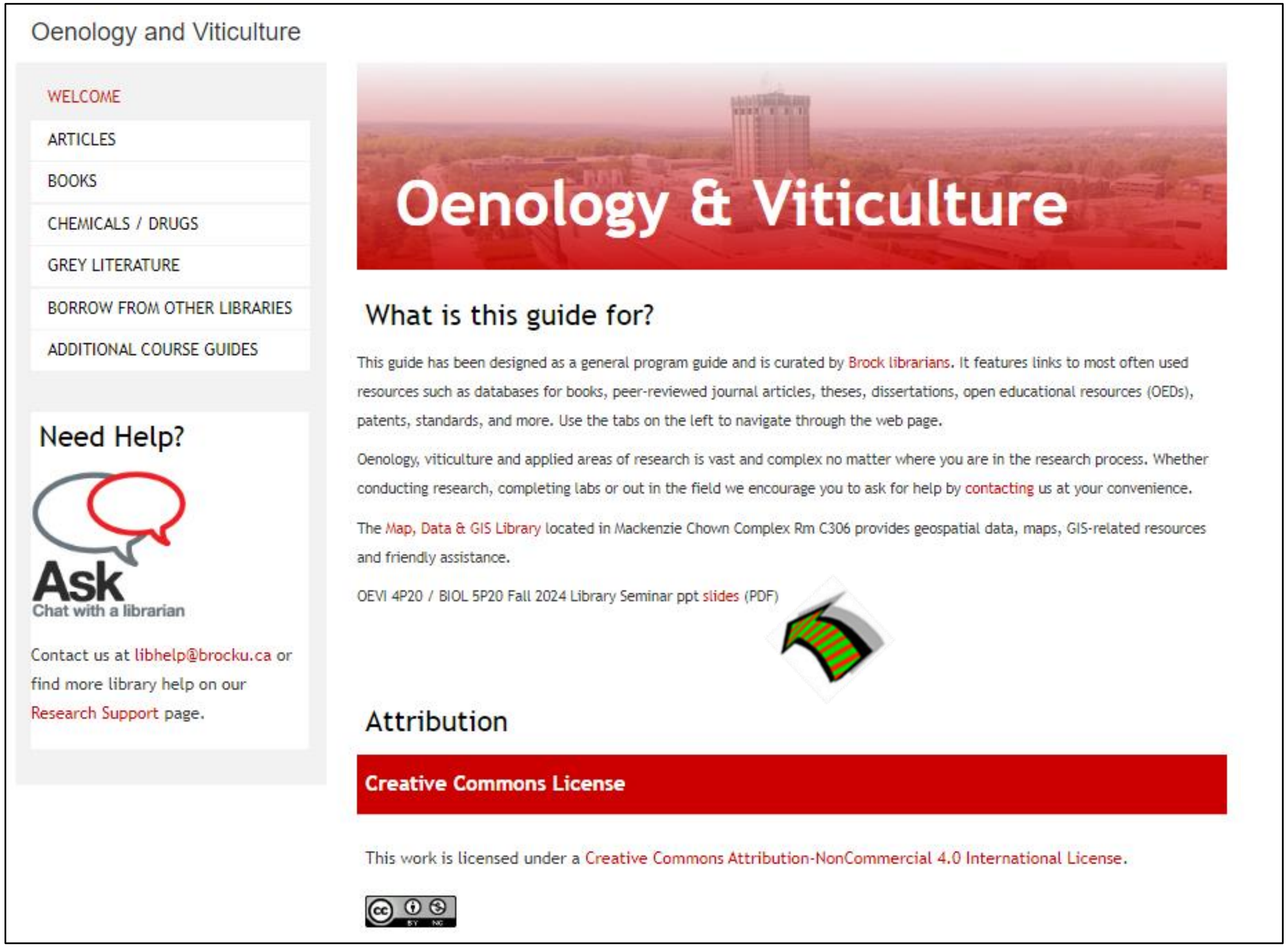
- Scholarly databases – lots of them!
- Citation management
- Where, how and when to get help

https://researchguides.library.brocku.ca/OEVI



Oenology and Viticulture

- WELCOME
- ARTICLES
- BOOKS
- CHEMICALS / DRUGS
- GREY LITERATURE
- BORROW FROM OTHER LIBRARIES
- ADDITIONAL COURSE GUIDES

Need Help?

Contact us at libhelp@brocku.ca or find more library help on our Research Support page.

What is this guide for?

This guide has been designed as a general program guide and is curated by Brock librarians. It features links to most often used resources such as databases for books, peer-reviewed journal articles, theses, dissertations, open educational resources (OEDs), patents, standards, and more. Use the tabs on the left to navigate through the web page.

Oenology, viticulture and applied areas of research is vast and complex no matter where you are in the research process. Whether conducting research, completing labs or out in the field we encourage you to ask for help by contacting us at your convenience.

The Map, Data & GIS Library located in Mackenzie Chown Complex Rm C306 provides geospatial data, maps, GIS-related resources and friendly assistance.

OEVI 4P20 / BIOL 5P20 Fall 2024 Library Seminar ppt slides (PDF)

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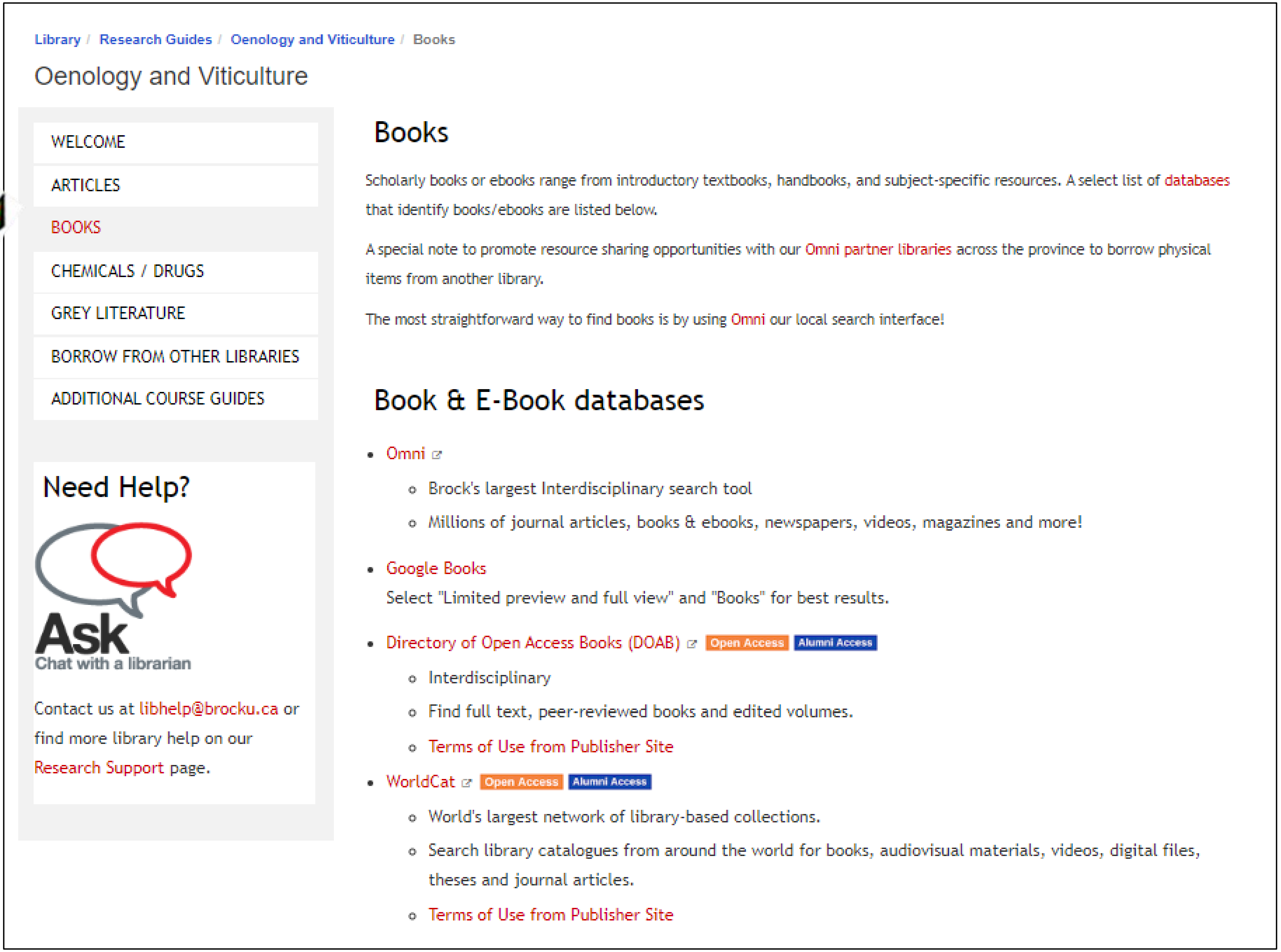

Library / Research Guides / Oenology and Viticulture / Books

Oenology and Viticulture

WELCOME
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ADDITIONAL COURSE GUIDES

Books

Scholarly books or ebooks range from introductory textbooks, handbooks, and subject-specific resources. A select list of databases that identify books/ebooks are listed below.

A special note to promote resource sharing opportunities with our Omni partner libraries across the province to borrow physical items from another library.

The most straightforward way to find books is by using Omni our local search interface!

Book & E-Book databases

- Omni
  - Brock's largest Interdisciplinary search tool
  - Millions of journal articles, books & ebooks, newspapers, videos, magazines and more!
- Google Books
  Select "Limited preview and full view" and "Books" for best results.
- Directory of Open Access Books (DOAB) Open Access Alumni Access
  - Interdisciplinary
  - Find full text, peer-reviewed books and edited volumes.
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- WorldCat Open Access Alumni Access
  - World's largest network of library-based collections.
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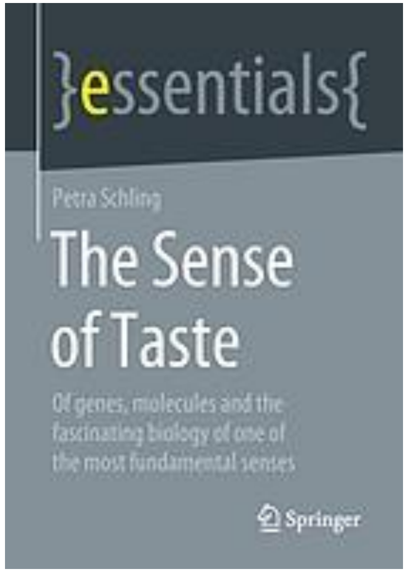
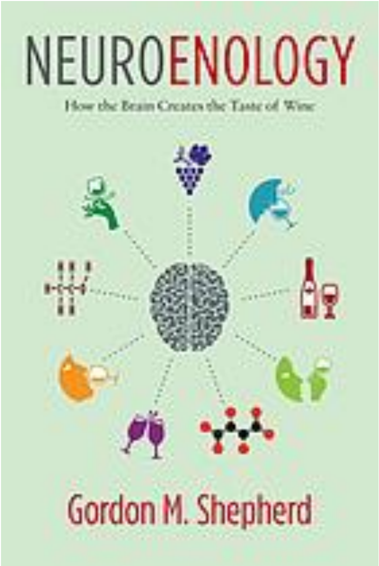

}essentials{

Petra Schling

The Sense of Taste

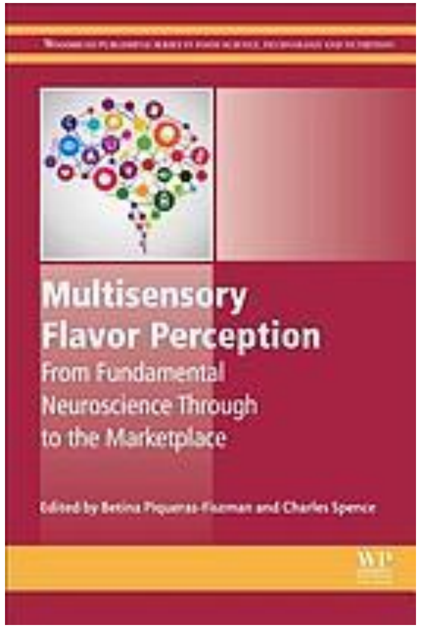
Of genes, molecules and the fascinating biology of one of the most fundamental senses

Springer


NEUROENOLOGY

How the Brain Creates the Taste of Wine

Gordon M. Shepherd


Multisensory Flavor Perception

From Fundamental Neuroscience Through to the Marketplace

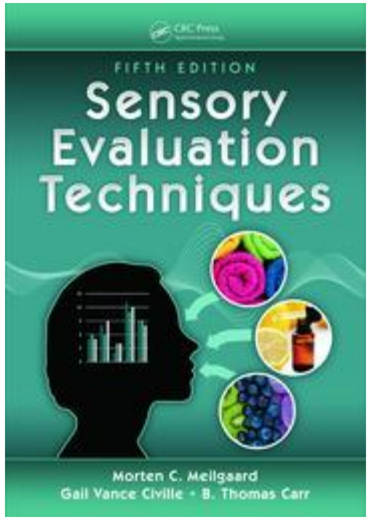
Edited by Betina Piqueras-Fiszman and Charles Spence

WP

fermentation

Modern Technologies and Their Influence in Fermentation Quality

MDPI

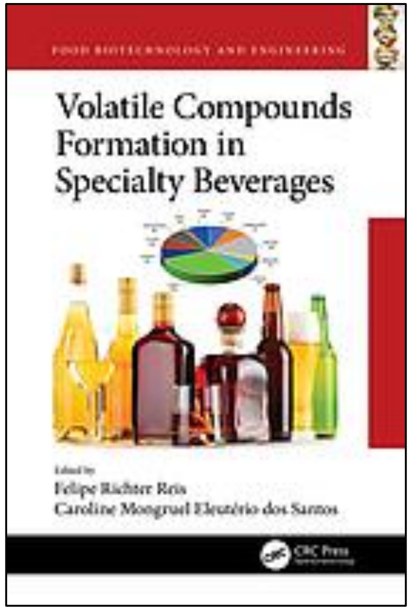

CRC Press

FIFTH EDITION

Sensory Evaluation Techniques

Morten C. Meilgaard

Gail Vance Civille • B. Thomas Carr


FOOD BIOTECHNOLOGY AND ENGINEERING

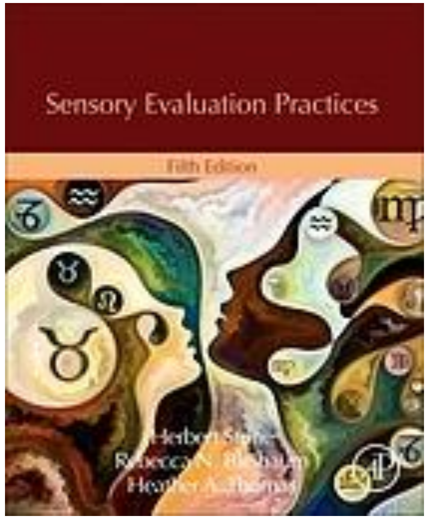
Volatile Compounds Formation in Specialty Beverages

Edited by

Felipe Richter Reis

Caroline Mongruel Eleutério dos Santos

CRC Press

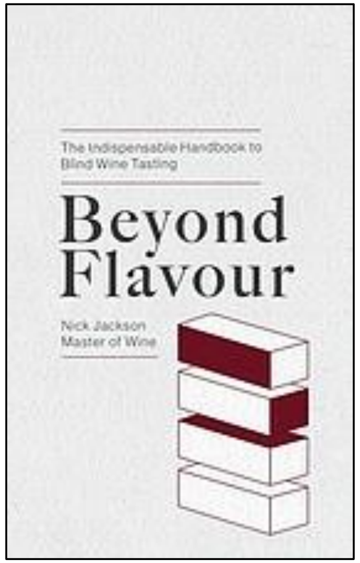

Sensory Evaluation Practices

Fifth Edition

Herbert Stone

Rebecca N. Bleibaum

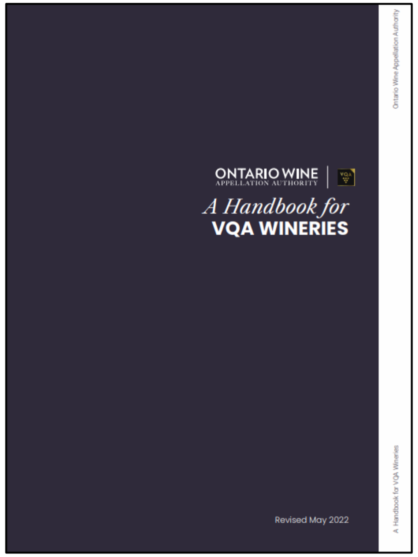
Heather A. Thomas


The Indispensable Handbook to Blind Wine Tasting

Beyond Flavour

Nick Jackson

Master of Wine



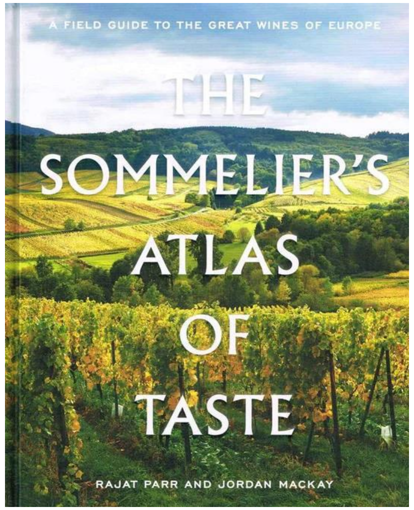
ONTARIO WINE
APPELLATION AUTHORITY

A Handbook for
VQA WINERIES

Revised May 2022

Ontario Wine Appellation Authority

A Handbook for VQA Wineries



A FIELD GUIDE TO THE GREAT WINES OF EUROPE

THE SOMMELIER'S ATLAS OF TASTE

RAJAT PARR AND JORDAN MACKAY

OREGON STATE UNIVERSITY EXTENSION SERVICE

Impact of Smoke Exposure on Wine

Photo: Alexander Levin, © Oregon State University

Smoke from a local wildfire rises over a vineyard. Compounds in smoke can be transferred to grapes.

James Osborne and Elizabeth Tomasino

An increase in the frequency of wildfires in California, Oregon and Washington in recent years has exposed wine grapes in some areas to high levels of smoke. Smoke from wildfires contains a number of different volatile phenol compounds that can be transferred to grapes and potentially released during wine making. When present at certain concentrations, these volatile phenol compounds can impart a "smoky," "ashtray" or "campfire" flavor that consumers may find objectionable.

Unfortunately, our understanding of the effect of smoke exposure on wine is limited, making it challenging to develop strategies to prevent exposure or mitigate its effects. Here is a summary of what we know now, and a list of current best practices that can help preserve wine quality.

Volatile compounds and wine quality

Wildfire smoke contains hundreds of different volatile compounds. When grapevines are exposed to smoke, many of these compounds can accumulate

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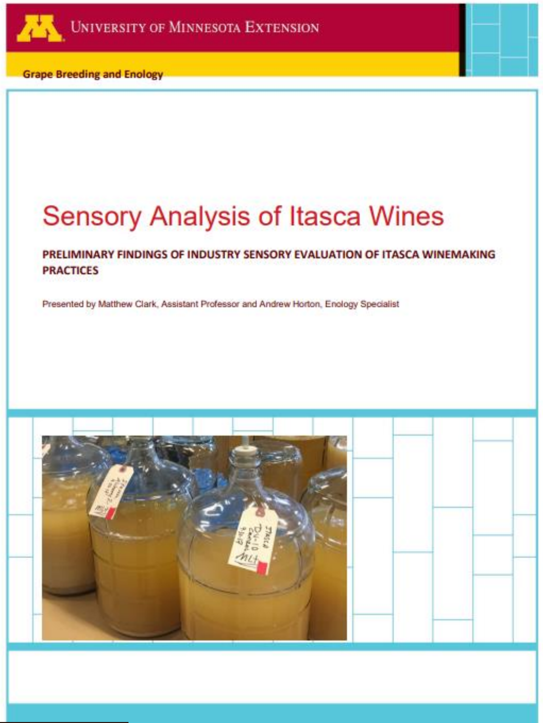
James Osborne, enology Extension specialist and associate professor, and Elizabeth Tomasino, associate professor, both of the Department of Food Science and Technology, Oregon State University.

Oregon State

EM 9253
September 2019



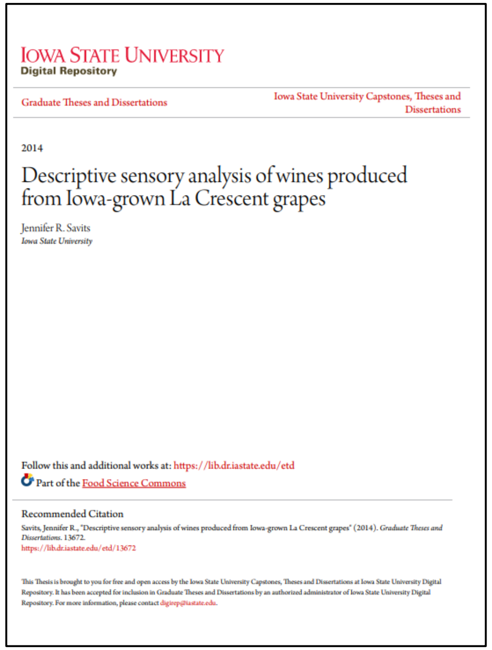
UNIVERSITY OF MINNESOTA EXTENSION

Grape Breeding and Enology

Sensory Analysis of Itasca Wines

PRELIMINARY FINDINGS OF INDUSTRY SENSORY EVALUATION OF ITASCA WINEMAKING PRACTICES

Presented by Matthew Clark, Assistant Professor and Andrew Horton, Enology Specialist



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2014

Descriptive sensory analysis of wines produced from Iowa-grown La Crescent grapes

Jennifer R. Savits
Iowa State University

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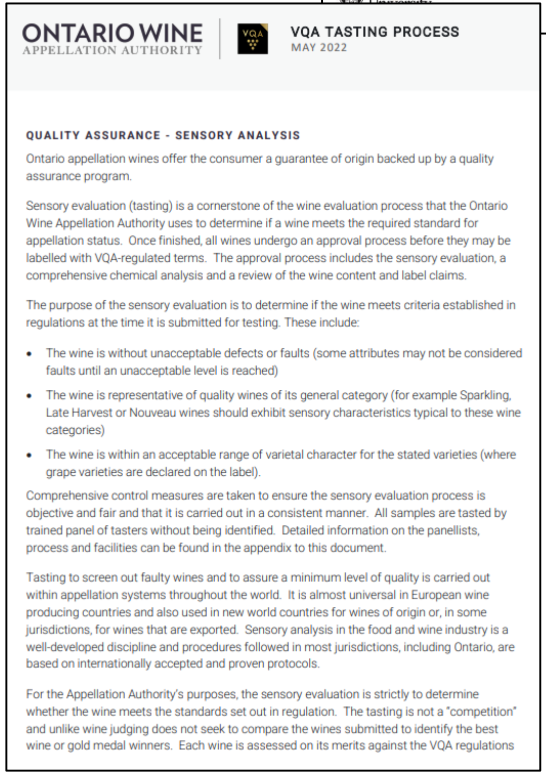


ONTARIO WINE
APPELLATION AUTHORITY

VQA TASTING PROCESS
MAY 2022

QUALITY ASSURANCE - SENSORY ANALYSIS

Ontario appellation wines offer the consumer a guarantee of origin backed up by a quality assurance program.

Sensory evaluation (tasting) is a cornerstone of the wine evaluation process that the Ontario Wine Appellation Authority uses to determine if a wine meets the required standard for appellation status. Once finished, all wines undergo an approval process before they may be labelled with VQA-regulated terms. The approval process includes the sensory evaluation, a comprehensive chemical analysis and a review of the wine content and label claims.

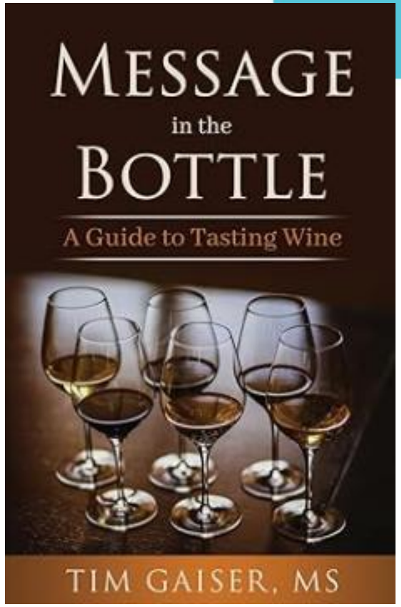
The purpose of the sensory evaluation is to determine if the wine meets criteria established in regulations at the time it is submitted for testing. These include:

- The wine is without unacceptable defects or faults (some attributes may not be considered faults until an unacceptable level is reached)
- The wine is representative of quality wines of its general category (for example Sparkling, Late Harvest or Nouveau wines should exhibit sensory characteristics typical to these wine categories)
- The wine is within an acceptable range of varietal character for the stated varieties (where grape varieties are declared on the label).

Comprehensive control measures are taken to ensure the sensory evaluation process is objective and fair and that it is carried out in a consistent manner. All samples are tasted by trained panel of tasters without being identified. Detailed information on the panellists, process and facilities can be found in the appendix to this document.

Tasting to screen out faulty wines and to assure a minimum level of quality is carried out within appellation systems throughout the world. It is almost universal in European wine producing countries and also used in new world countries for wines of origin or, in some jurisdictions, for wines that are exported. Sensory analysis in the food and wine industry is a well-developed discipline and procedures followed in most jurisdictions, including Ontario, are based on internationally accepted and proven protocols.

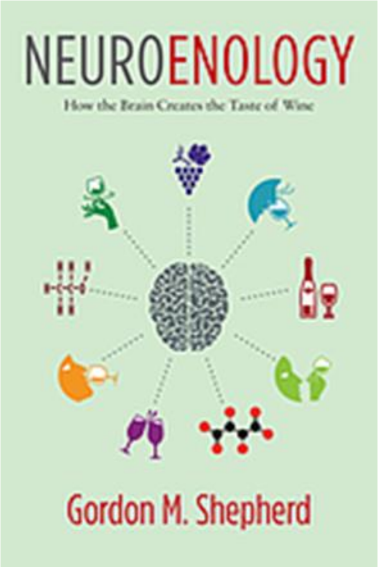
For the Appellation Authority's purposes, the sensory evaluation is strictly to determine whether the wine meets the standards set out in regulation. The tasting is not a "competition" and unlike wine judging does not seek to compare the wines submitted to identify the best wine or gold medal winners. Each wine is assessed on its merits against the VQA regulations



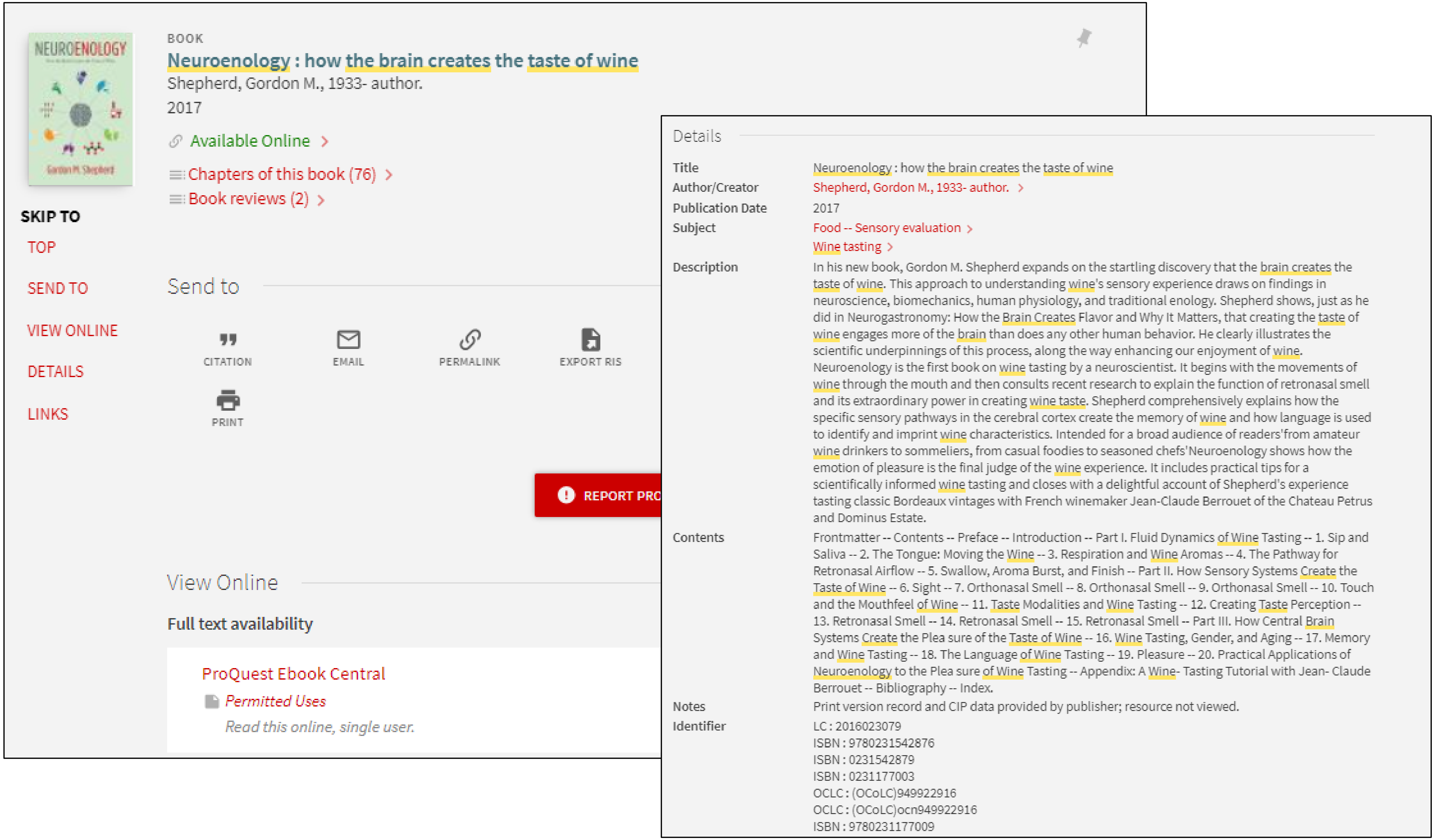
MESSAGE in the BOTTLE

A Guide to Tasting Wine

TIM GAISER, MS



Shepherd, G. M. (2017). *Neuroenology: How the brain creates the taste of wine*. Columbia University Press.



BOOK

Neuroenology : how the brain creates the taste of wine

Shepherd, Gordon M., 1933- author.

2017

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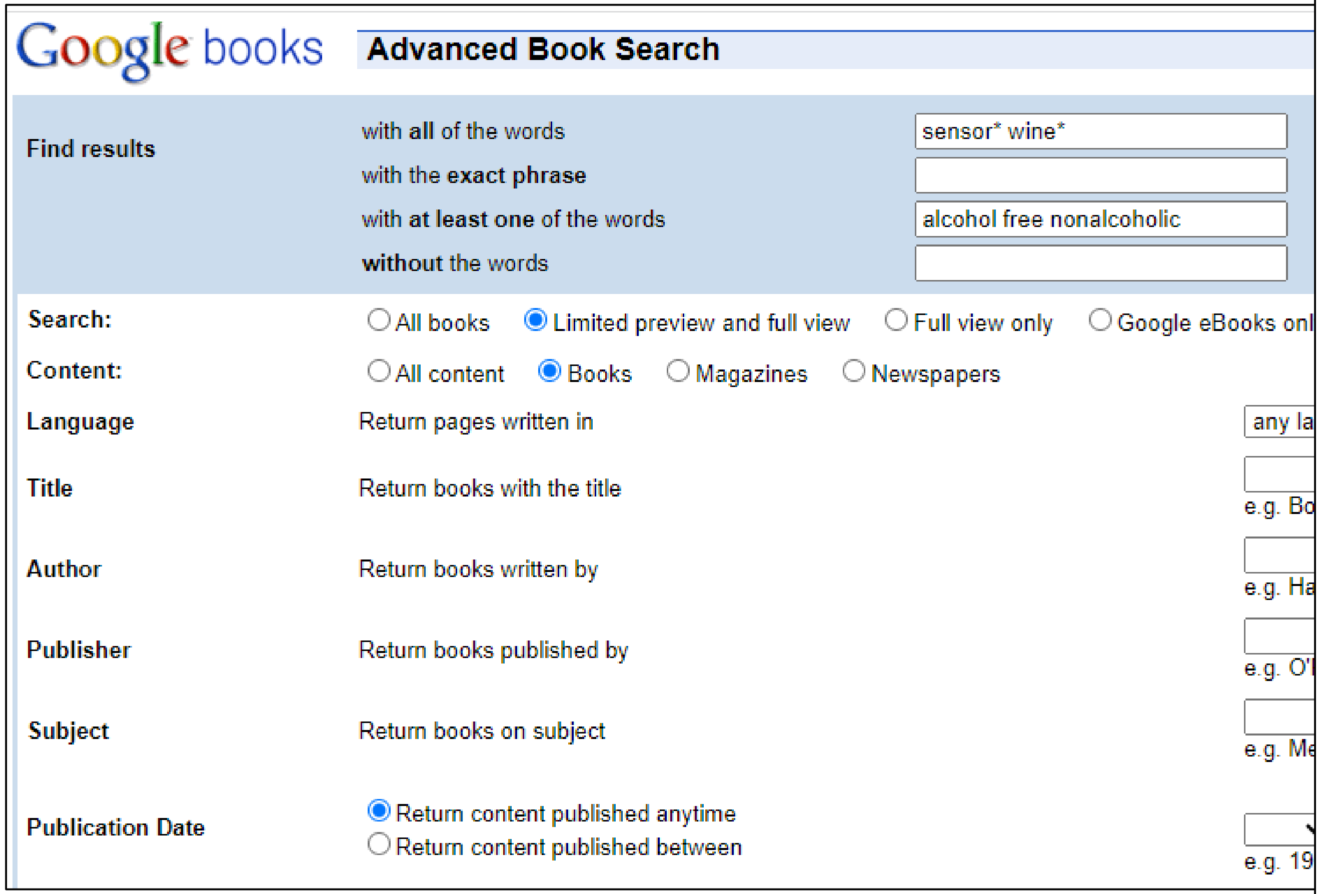
Details

Title	Neuroenology : how the brain creates the taste of wine
Author/Creator	Shepherd, Gordon M., 1933- author. >
Publication Date	2017
Subject	Food -- Sensory evaluation > Wine tasting >
Description	In his new book, Gordon M. Shepherd expands on the startling discovery that the brain creates the taste of wine. This approach to understanding wine's sensory experience draws on findings in neuroscience, biomechanics, human physiology, and traditional enology. Shepherd shows, just as he did in Neurogastronomy: How the Brain Creates Flavor and Why It Matters, that creating the taste of wine engages more of the brain than does any other human behavior. He clearly illustrates the scientific underpinnings of this process, along the way enhancing our enjoyment of wine. Neuroenology is the first book on wine tasting by a neuroscientist. It begins with the movements of wine through the mouth and then consults recent research to explain the function of retronasal smell and its extraordinary power in creating wine taste. Shepherd comprehensively explains how the specific sensory pathways in the cerebral cortex create the memory of wine and how language is used to identify and imprint wine characteristics. Intended for a broad audience of readers'from amateur wine drinkers to sommeliers, from casual foodies to seasoned chefs'Neuroenology shows how the emotion of pleasure is the final judge of the wine experience. It includes practical tips for a scientifically informed wine tasting and closes with a delightful account of Shepherd's experience tasting classic Bordeaux vintages with French winemaker Jean-Claude Berrouet of the Chateau Petrus and Dominus Estate.
Contents	Frontmatter -- Contents -- Preface -- Introduction -- Part I. Fluid Dynamics of Wine Tasting -- 1. Sip and Saliva -- 2. The Tongue: Moving the Wine -- 3. Respiration and Wine Aromas -- 4. The Pathway for Retronasal Airflow -- 5. Swallow, Aroma Burst, and Finish -- Part II. How Sensory Systems Create the Taste of Wine -- 6. Sight -- 7. Orthonasal Smell -- 8. Orthonasal Smell -- 9. Orthonasal Smell -- 10. Touch and the Mouthfeel of Wine -- 11. Taste Modalities and Wine Tasting -- 12. Creating Taste Perception -- 13. Retronasal Smell -- 14. Retronasal Smell -- 15. Retronasal Smell -- Part III. How Central Brain Systems Create the Plea sure of the Taste of Wine -- 16. Wine Tasting, Gender, and Aging -- 17. Memory and Wine Tasting -- 18. The Language of Wine Tasting -- 19. Pleasure -- 20. Practical Applications of Neuroenology to the Plea sure of Wine Tasting -- Appendix: A Wine- Tasting Tutorial with Jean- Claude Berrouet -- Bibliography -- Index.
Notes	Print version record and CIP data provided by publisher; resource not viewed.
Identifier	LC : 2016023079 ISBN : 9780231542876 ISBN : 0231542879 ISBN : 0231177003 OCLC : (OCoLC)949922916 OCLC : (OCoLC)ocn949922916 ISBN : 9780231177009



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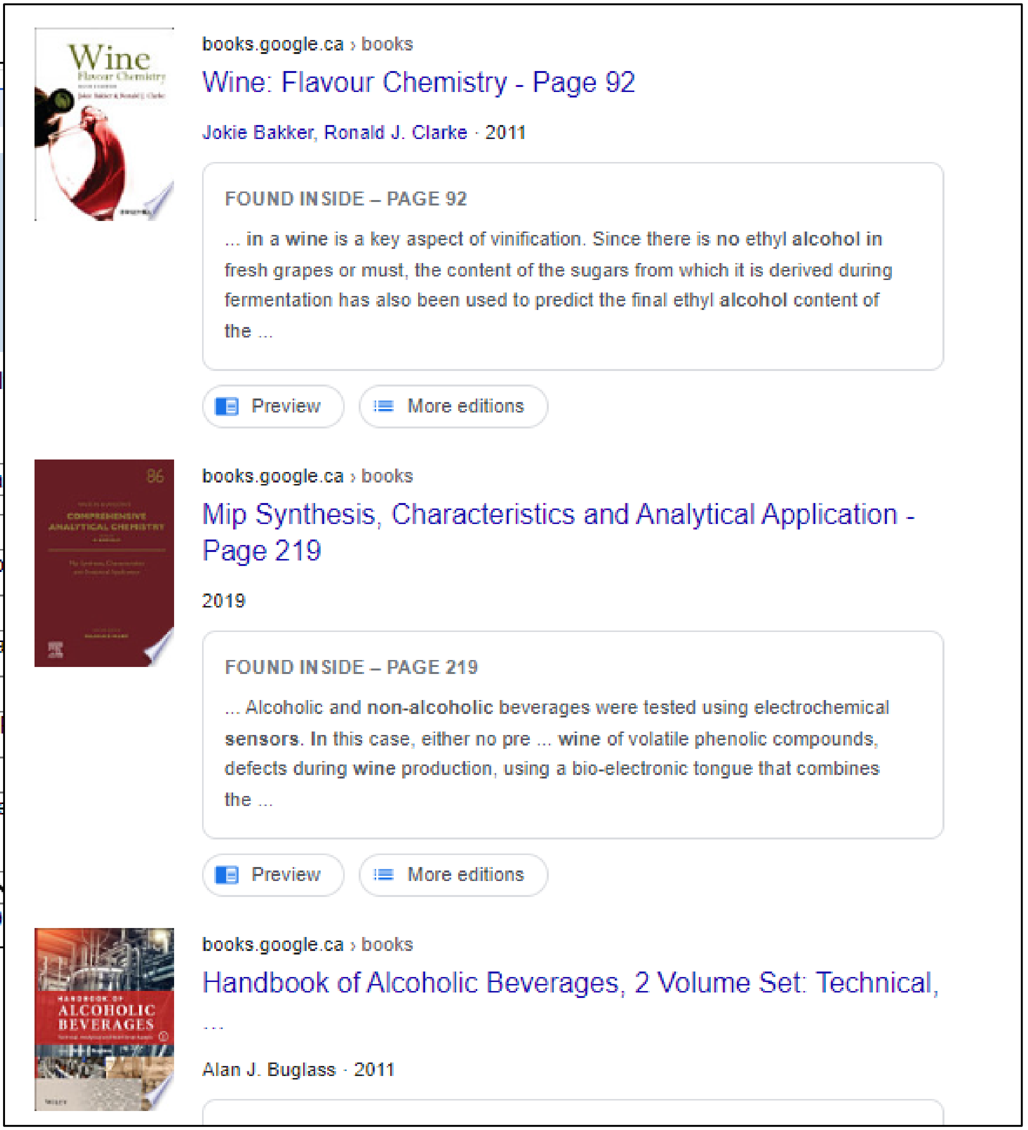

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Wine: Flavour Chemistry - Page 92

Jokie Bakker, Ronald J. Clarke · 2011

FOUND INSIDE – PAGE 92

... in a **wine** is a key aspect of vinification. Since there is **no** ethyl **alcohol** in fresh grapes or must, the content of the sugars from which it is derived during fermentation has also been used to predict the final ethyl **alcohol** content of the ...

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Mip Synthesis, Characteristics and Analytical Application - Page 219

2019

FOUND INSIDE – PAGE 219

... Alcoholic and **non-alcoholic** beverages were tested using electrochemical **sensors**. In this case, either no pre ... **wine** of volatile phenolic compounds, defects during **wine** production, using a bio-electronic tongue that combines the ...

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Handbook of Alcoholic Beverages, 2 Volume Set: Technical, ...

Alan J. Buglass · 2011

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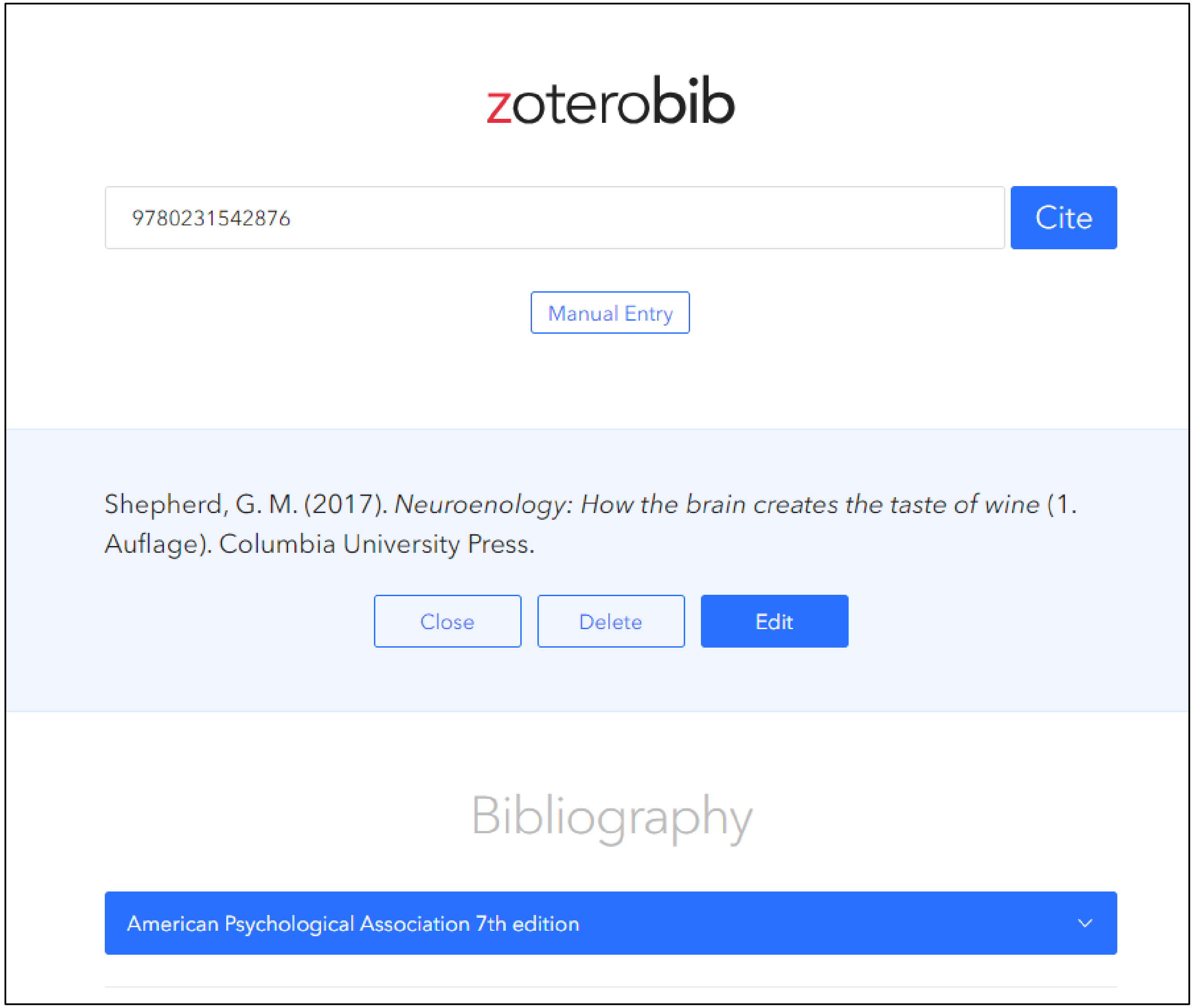

9780231542876

Shepherd, G. M. (2017). *Neuroenology: How the brain creates the taste of wine* (1. Auflage). Columbia University Press.

Bibliography

American Psychological Association 7th edition

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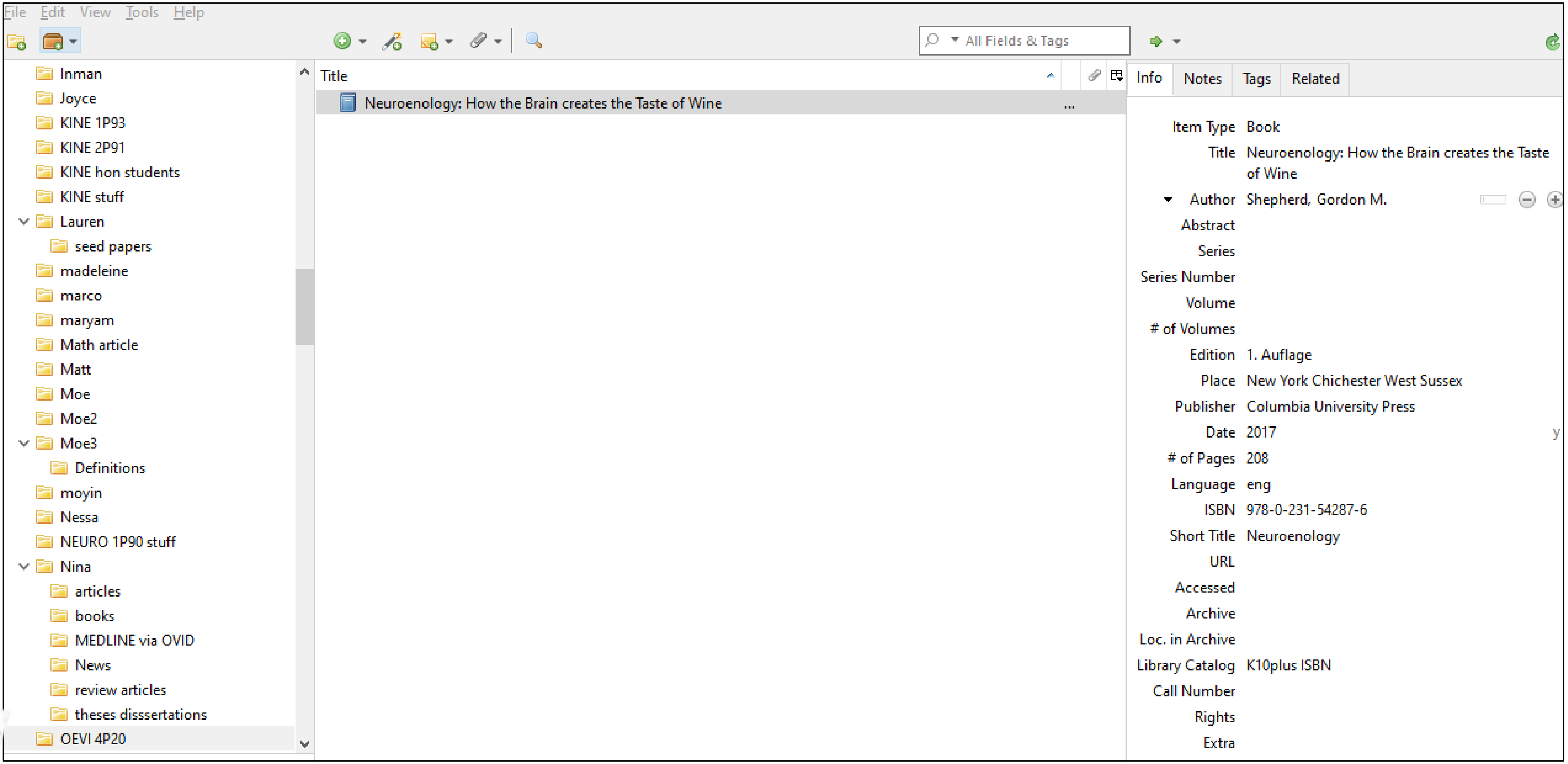

Neuroenology: How the Brain creates the Taste of Wine

Item Type	Book
Title	Neuroenology: How the Brain creates the Taste of Wine
Author	Shepherd, Gordon M.
Abstract	
Series	
Series Number	
Volume	
# of Volumes	
Edition	1. Auflage
Place	New York Chichester West Sussex
Publisher	Columbia University Press
Date	2017
# of Pages	208
Language	eng
ISBN	978-0-231-54287-6
Short Title	Neuroenology
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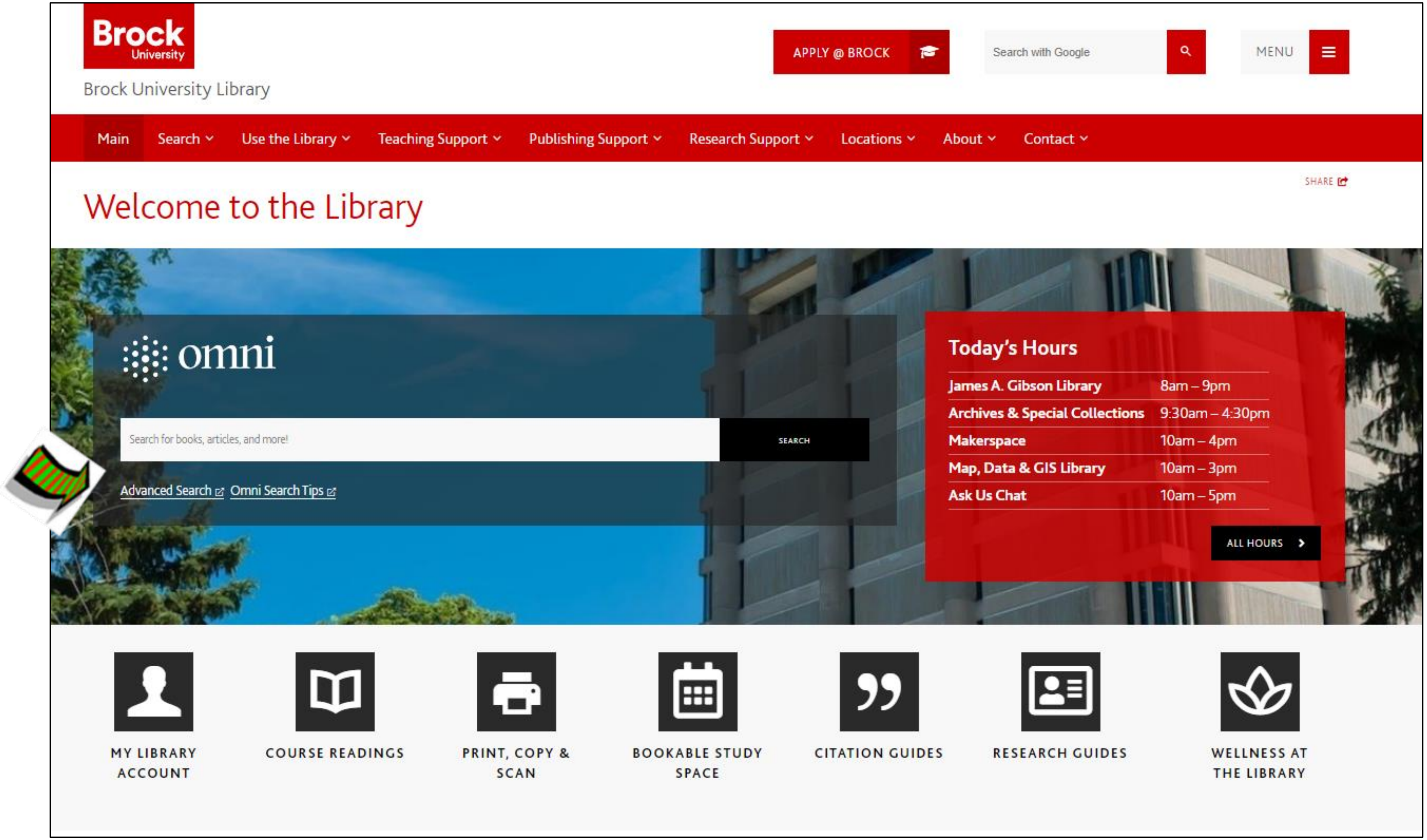

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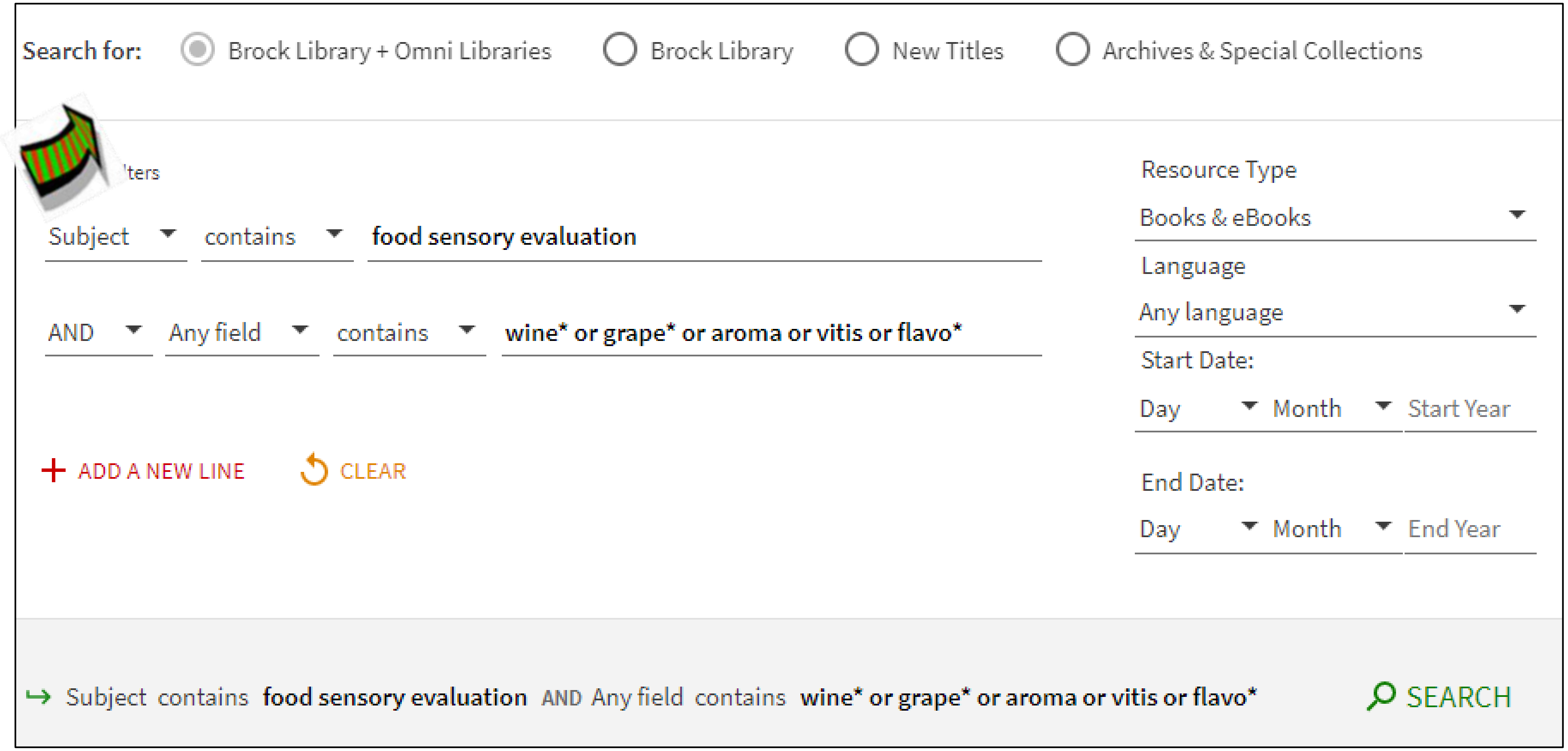

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Subject ▾ contains ▾ food sensory evaluation

AND ▾ Any field ▾ contains ▾ wine* or grape* or aroma or vitis or flavo*

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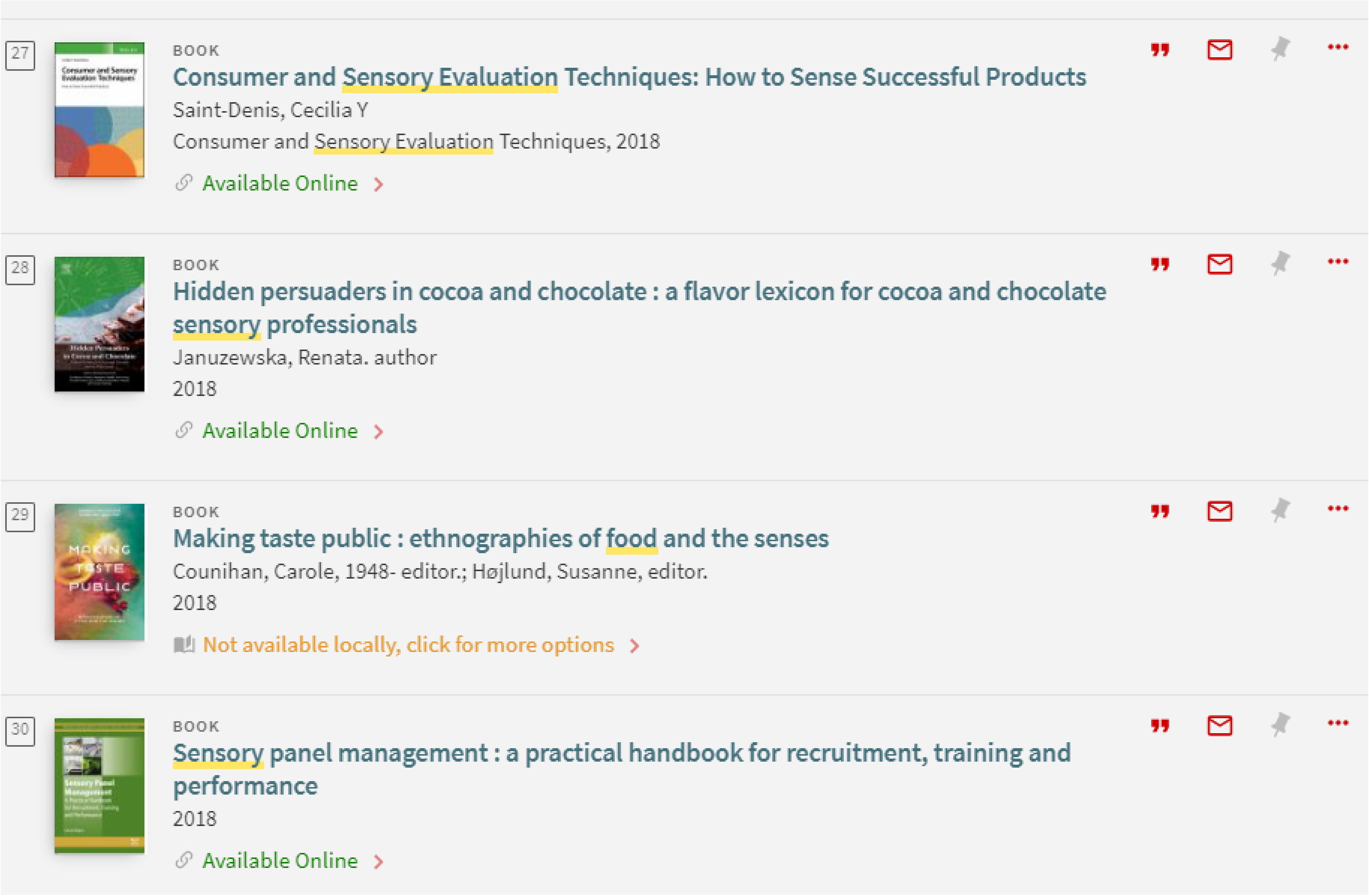

27

BOOK

Consumer and Sensory Evaluation Techniques: How to Sense Successful Products

Saint-Denis, Cecilia Y

Consumer and Sensory Evaluation Techniques, 2018

Available Online ›

28

BOOK

Hidden persuaders in cocoa and chocolate : a flavor lexicon for cocoa and chocolate sensory professionals

Januzewska, Renata. author

2018

Available Online ›

29

BOOK

Making taste public : ethnographies of food and the senses

Counihan, Carole, 1948- editor.; Højlund, Susanne, editor.

2018

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30

BOOK

Sensory panel management : a practical handbook for recruitment, training and performance

2018

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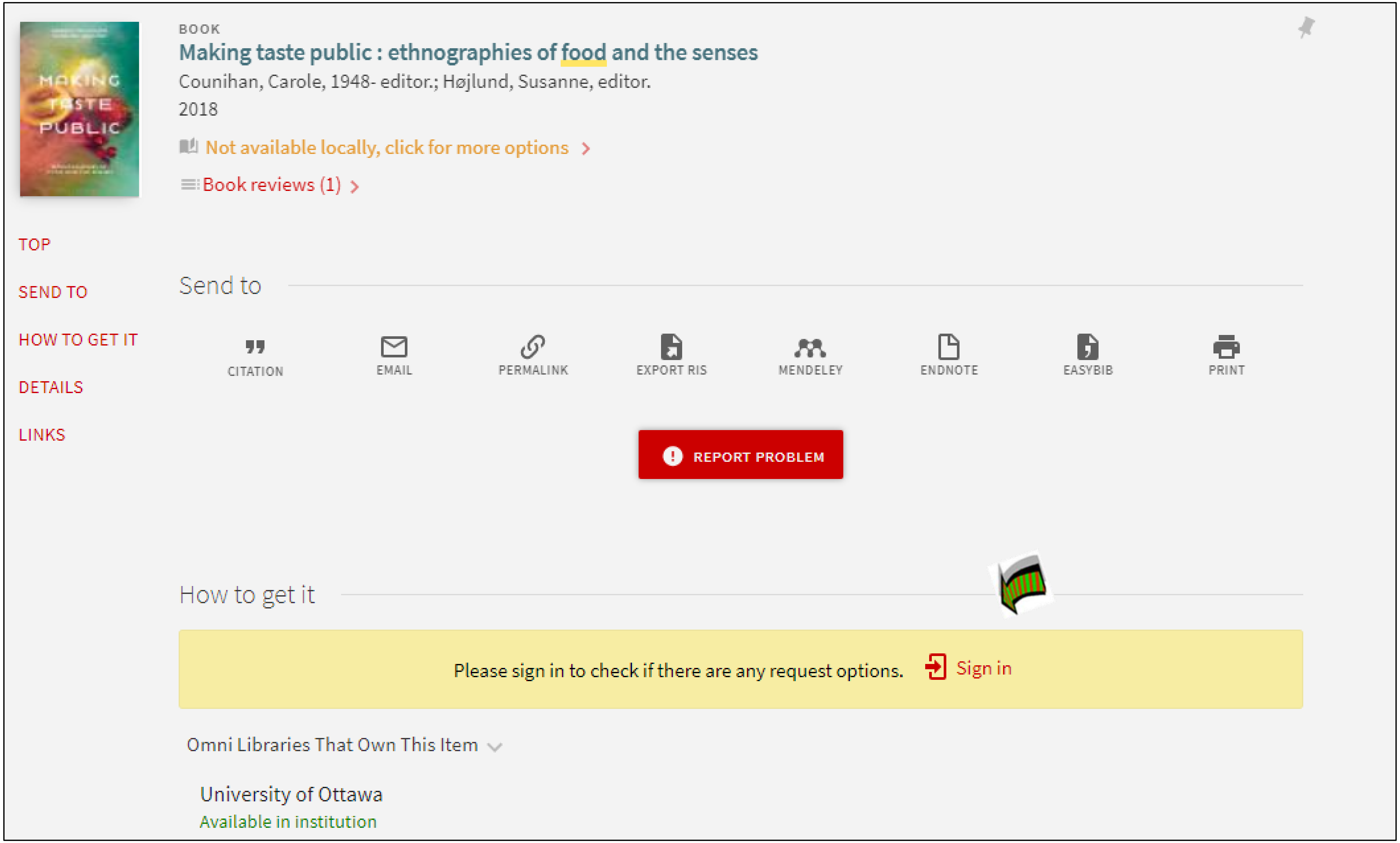

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Making taste public : ethnographies of food and the senses

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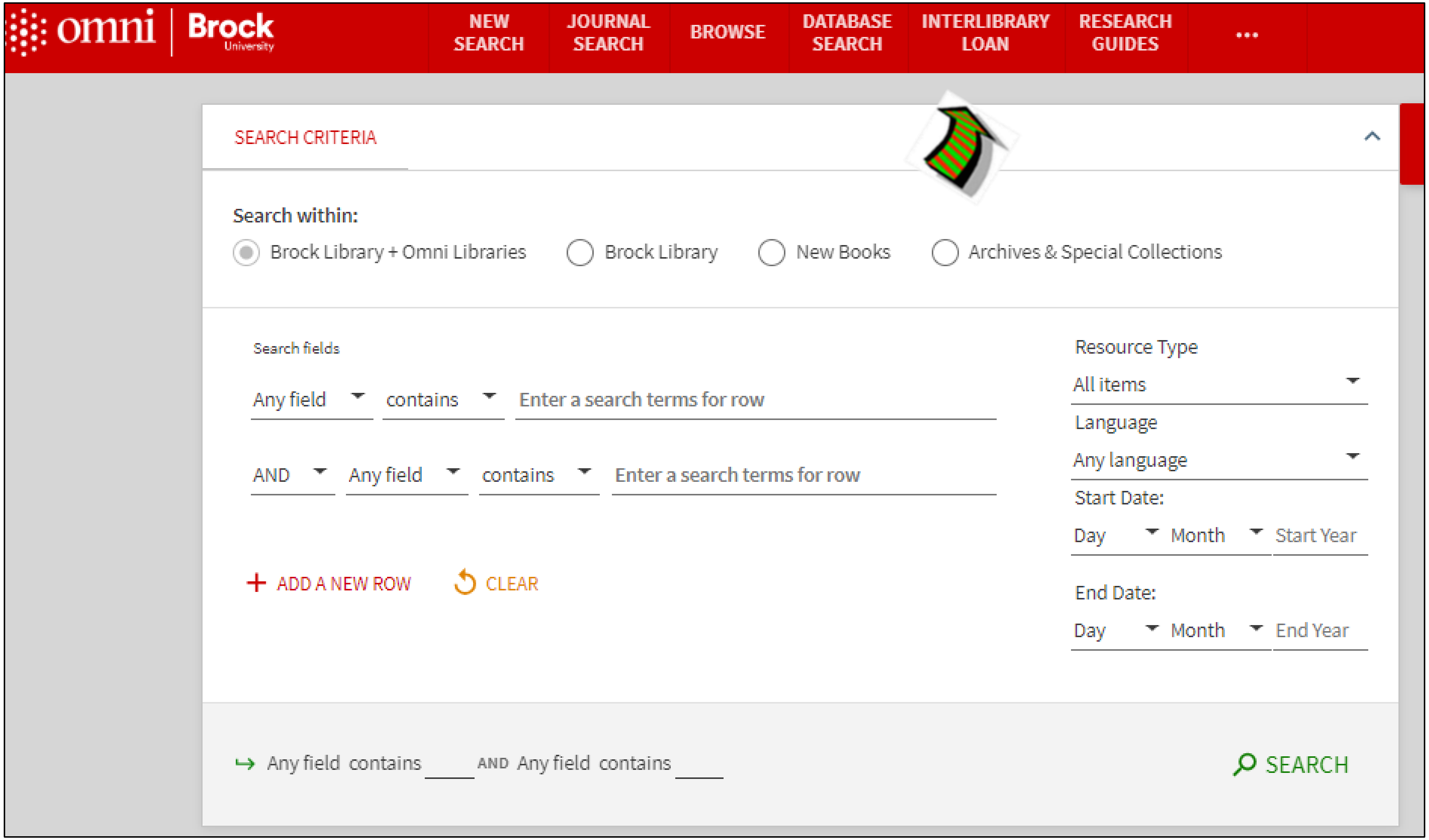

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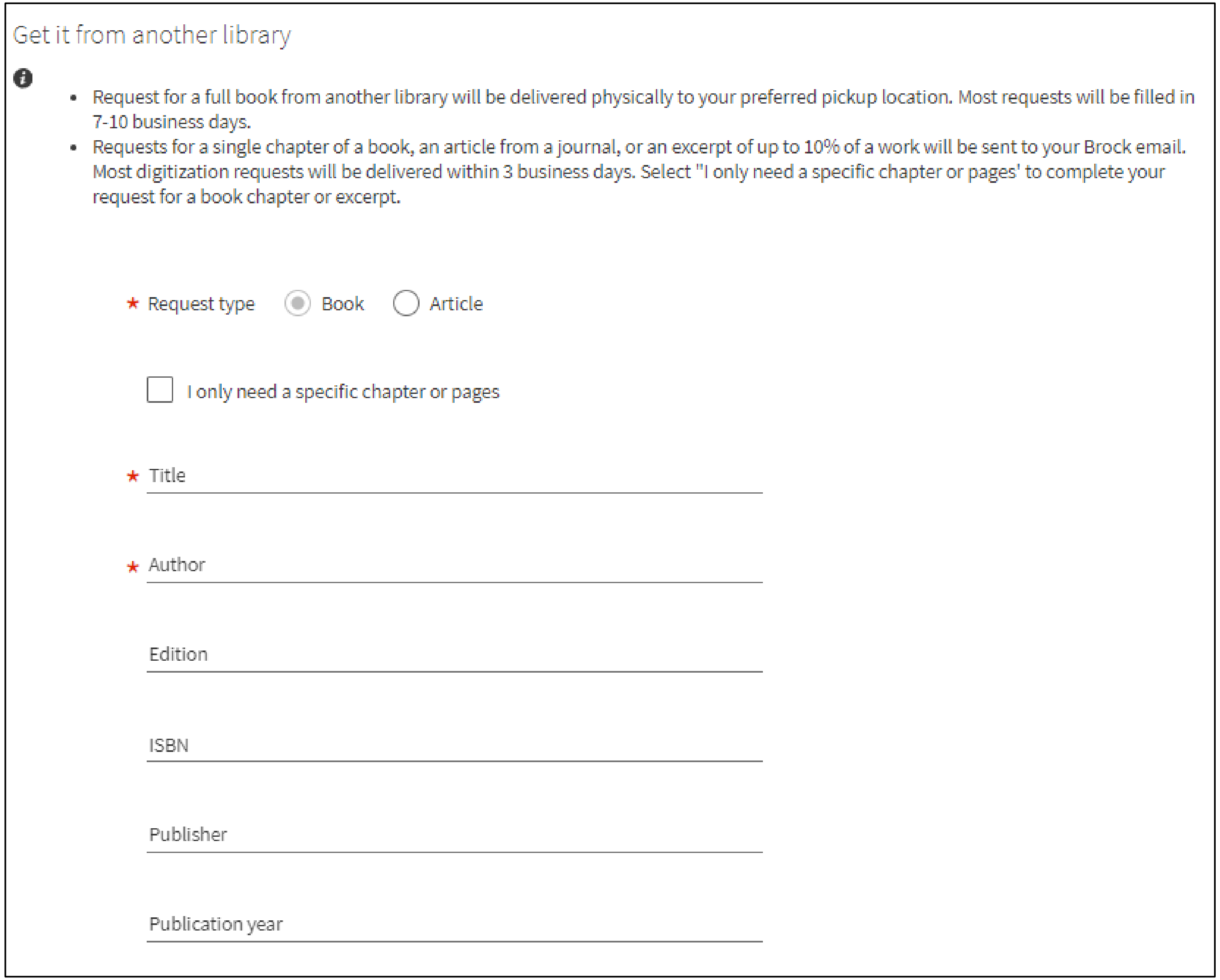

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Publication year

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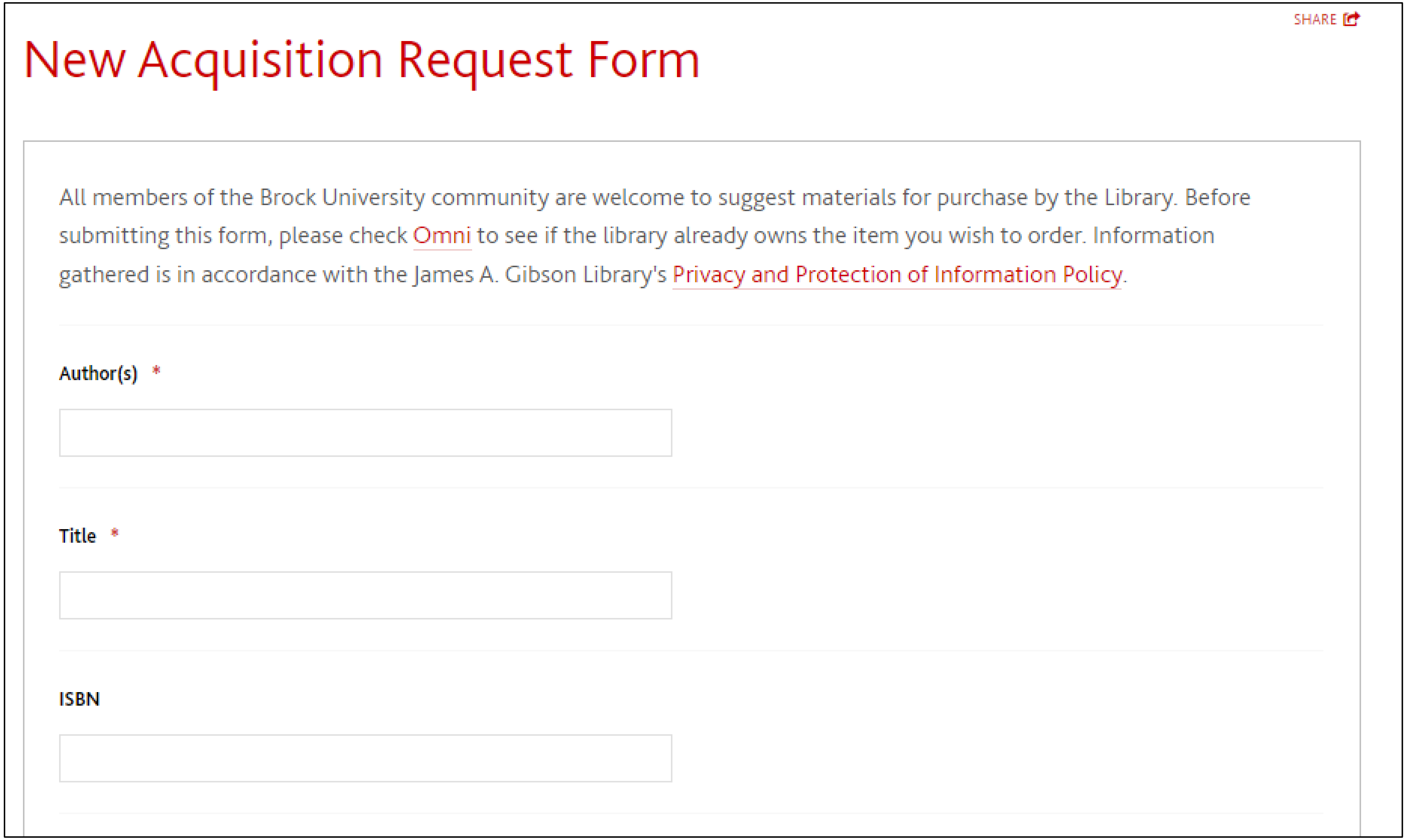

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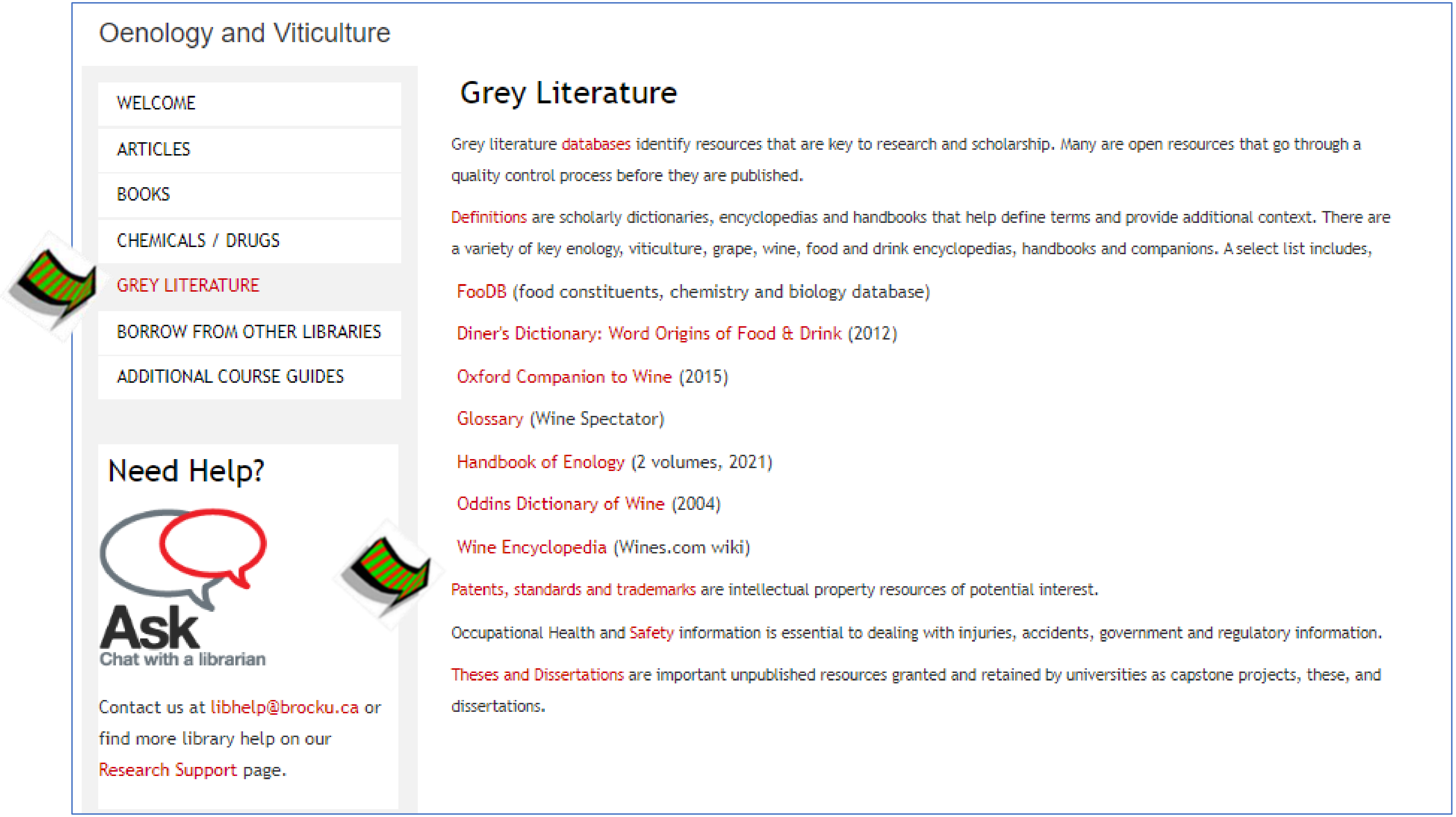

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Definitions are scholarly dictionaries, encyclopedias and handbooks that help define terms and provide additional context. There are a variety of key enology, viticulture, grape, wine, food and drink encyclopedias, handbooks and companions. A select list includes,

FooDB (food constituents, chemistry and biology database)

Diner's Dictionary: Word Origins of Food & Drink (2012)

Oxford Companion to Wine (2015)

Glossary (Wine Spectator)

Handbook of Enology (2 volumes, 2021)

Oddins Dictionary of Wine (2004)

Wine Encyclopedia (Wines.com wiki)

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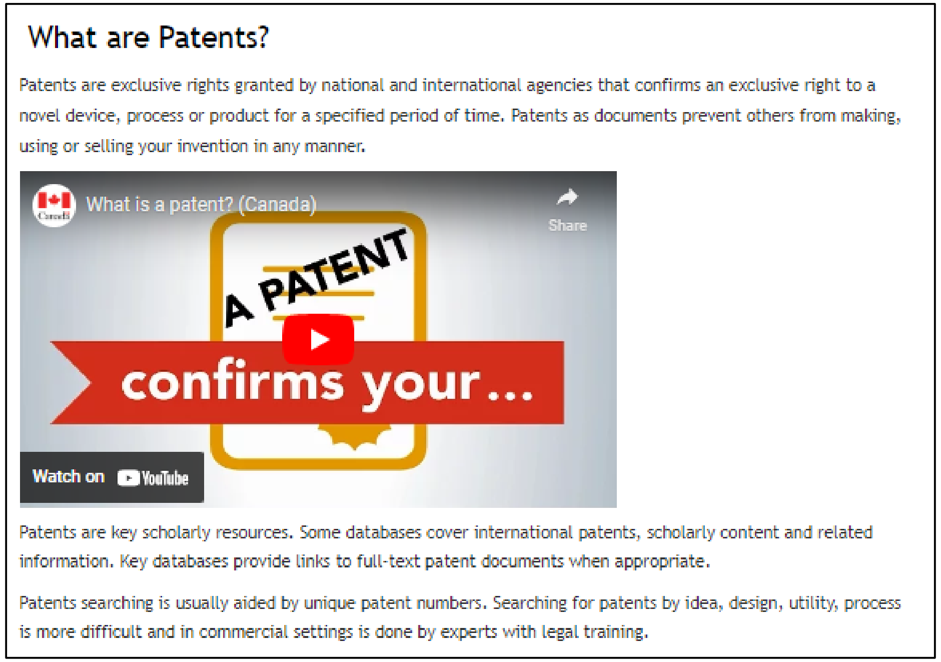

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Patents are exclusive rights granted by national and international agencies that confirms an exclusive right to a novel device, process or product for a specified period of time. Patents as documents prevent others from making, using or selling your invention in any manner.

Patents are key scholarly resources. Some databases cover international patents, scholarly content and related information. Key databases provide links to full-text patent documents when appropriate.

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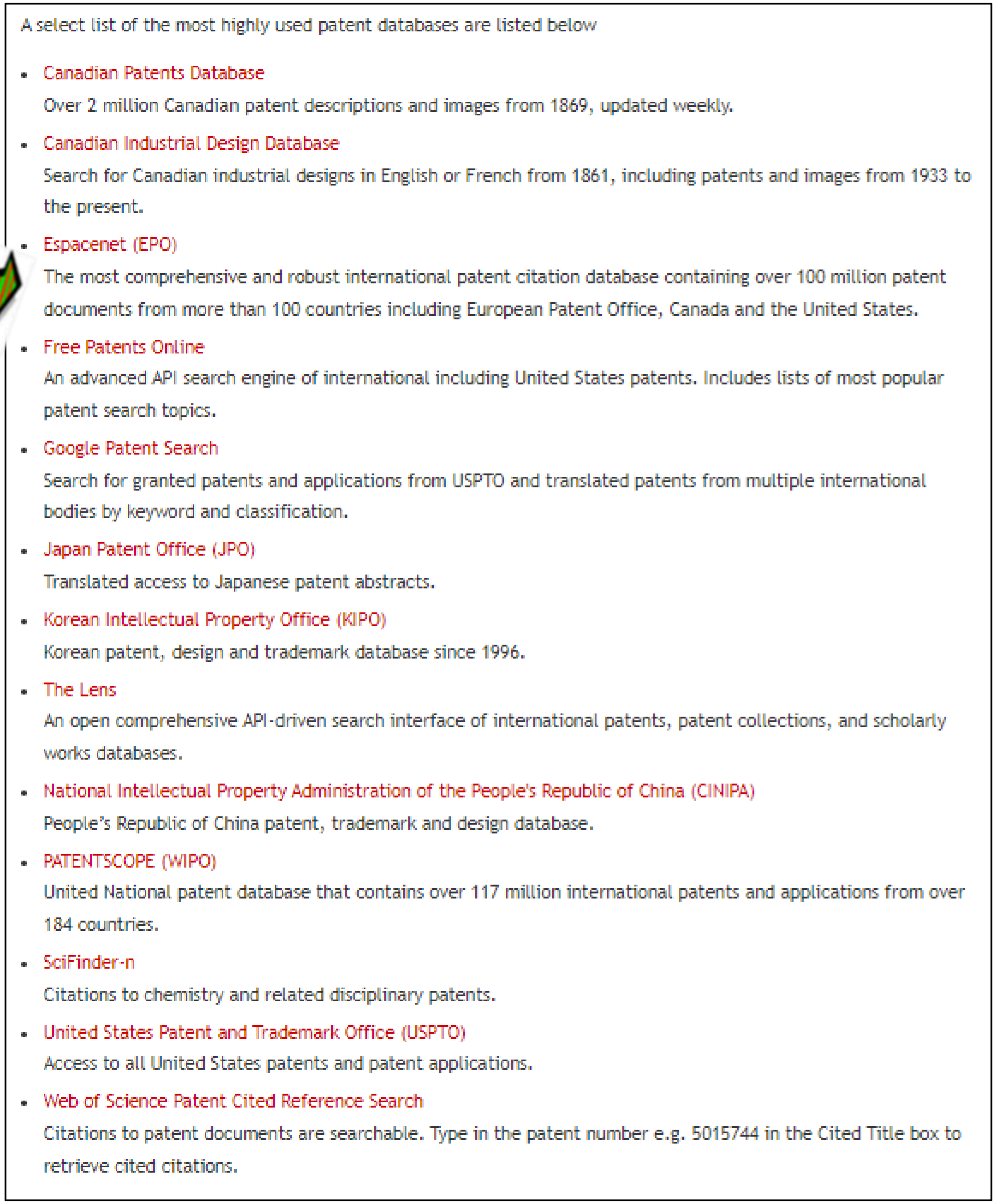

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- Canadian Patents Database
  Over 2 million Canadian patent descriptions and images from 1869, updated weekly.
- Canadian Industrial Design Database
  Search for Canadian industrial designs in English or French from 1861, including patents and images from 1933 to the present.
- Espacenet (EPO)
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- The Lens
  An open comprehensive API-driven search interface of international patents, patent collections, and scholarly works databases.
- National Intellectual Property Administration of the People's Republic of China (CINIPA)
  People's Republic of China patent, trademark and design database.
- PATENTSCOPE (WIPO)
  United National patent database that contains over 117 million international patents and applications from over 184 countries.
- SciFinder-n
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- United States Patent and Trademark Office (USPTO)
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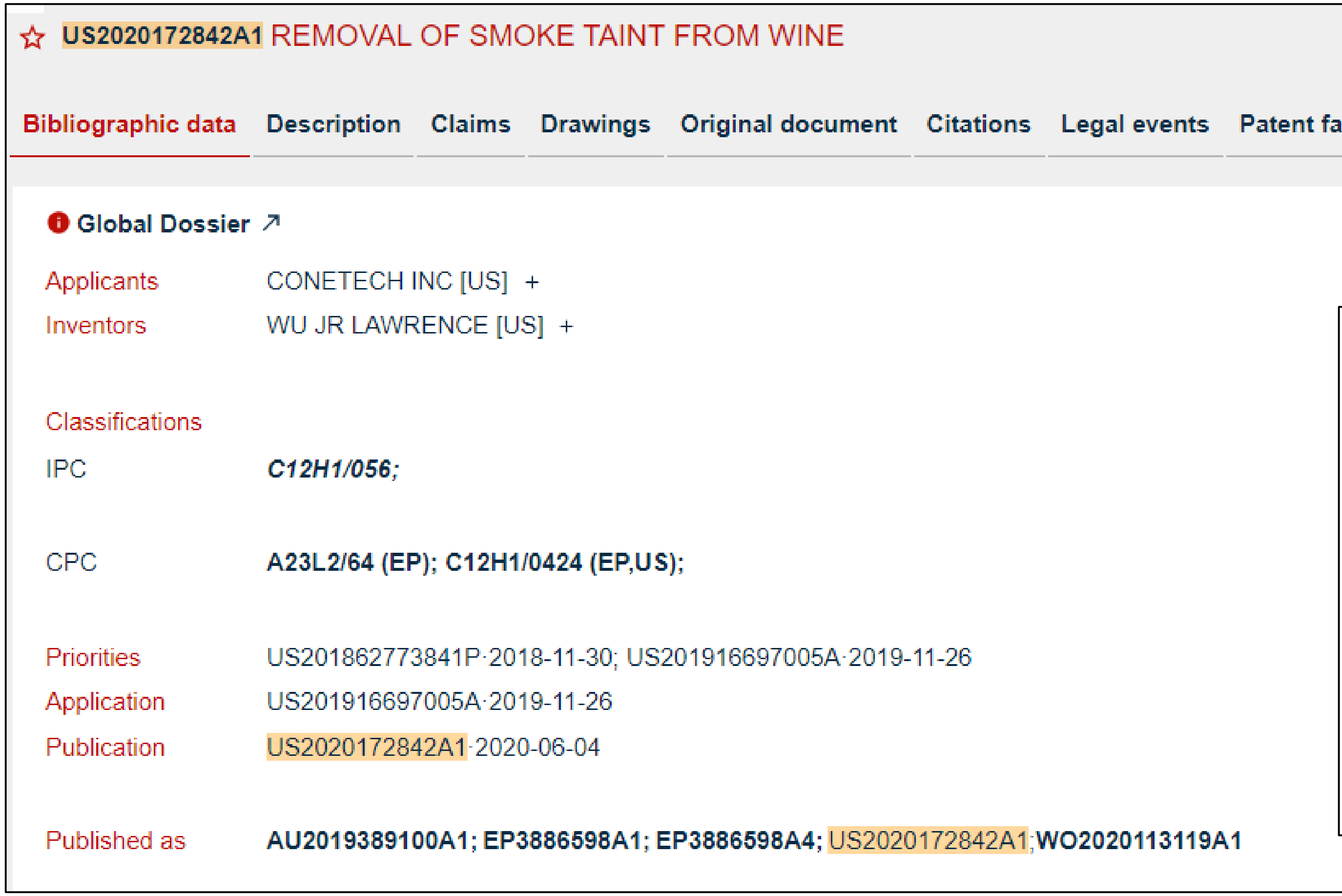
  Citations to patent documents are searchable. Type in the patent number e.g. 5015744 in the Cited Title box to retrieve cited citations.



☆ US2020172842A1 REMOVAL OF SMOKE TAINT FROM WINE

Bibliographic data | Description | Claims | Drawings | Original document | Citations | Legal events | Patent family

Global Dossier ↗

Applicants	CONETECH INC [US] +
Inventors	WU JR LAWRENCE [US] +
Classifications	
IPC	***C12H1/056;***
CPC	**A23L2/64 (EP); C12H1/0424 (EP,US);**
Priorities	US201862773841P·2018-11-30; US201916697005A·2019-11-26
Application	US201916697005A·2019-11-26
Publication	US2020172842A1·2020-06-04
Published as	**AU2019389100A1; EP3886598A1; EP3886598A4;** US2020172842A1;**WO2020113119A1**

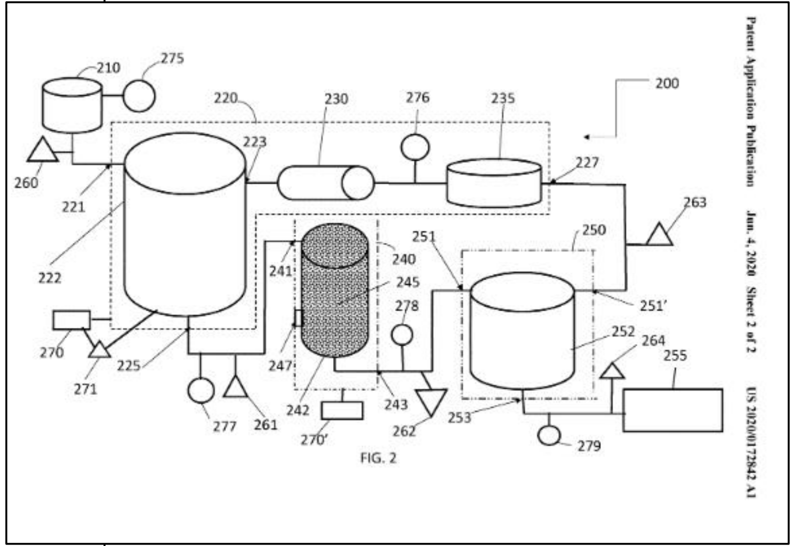
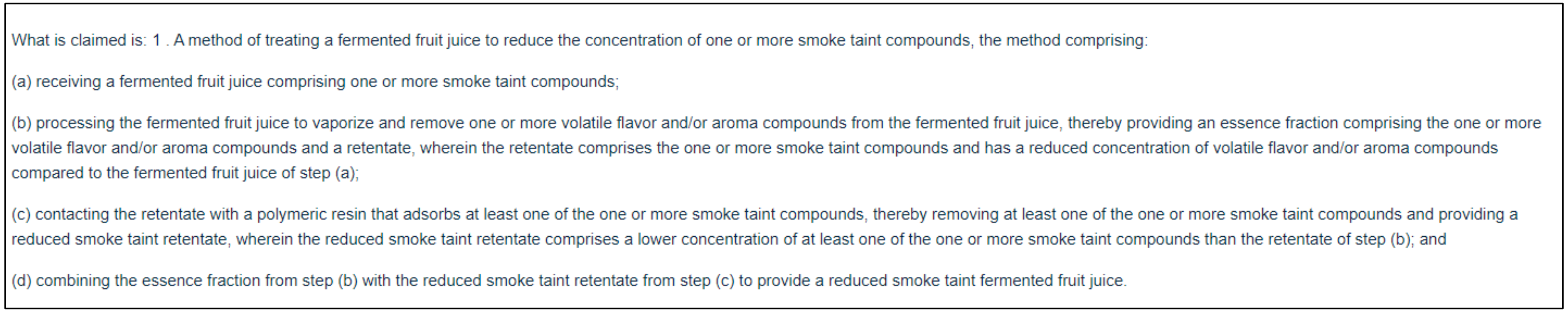


FIG. 2



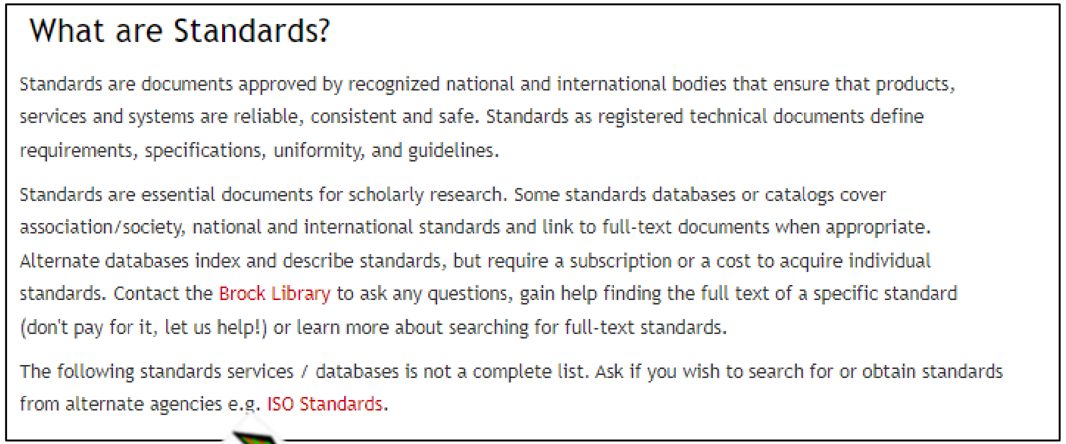
What is claimed is: 1 . A method of treating a fermented fruit juice to reduce the concentration of one or more smoke taint compounds, the method comprising:

(a) receiving a fermented fruit juice comprising one or more smoke taint compounds;

(b) processing the fermented fruit juice to vaporize and remove one or more volatile flavor and/or aroma compounds from the fermented fruit juice, thereby providing an essence fraction comprising the one or more volatile flavor and/or aroma compounds and a retentate, wherein the retentate comprises the one or more smoke taint compounds and has a reduced concentration of volatile flavor and/or aroma compounds compared to the fermented fruit juice of step (a);

(c) contacting the retentate with a polymeric resin that adsorbs at least one of the one or more smoke taint compounds, thereby removing at least one of the one or more smoke taint compounds and providing a reduced smoke taint retentate, wherein the reduced smoke taint retentate comprises a lower concentration of at least one of the one or more smoke taint compounds than the retentate of step (b); and

(d) combining the essence fraction from step (b) with the reduced smoke taint retentate from step (c) to provide a reduced smoke taint fermented fruit juice.



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Standards are essential documents for scholarly research. Some standards databases or catalogs cover association/society, national and international standards and link to full-text documents when appropriate. Alternate databases index and describe standards, but require a subscription or a cost to acquire individual standards. Contact the Brock Library to ask any questions, gain help finding the full text of a specific standard (don't pay for it, let us help!) or learn more about searching for full-text standards.

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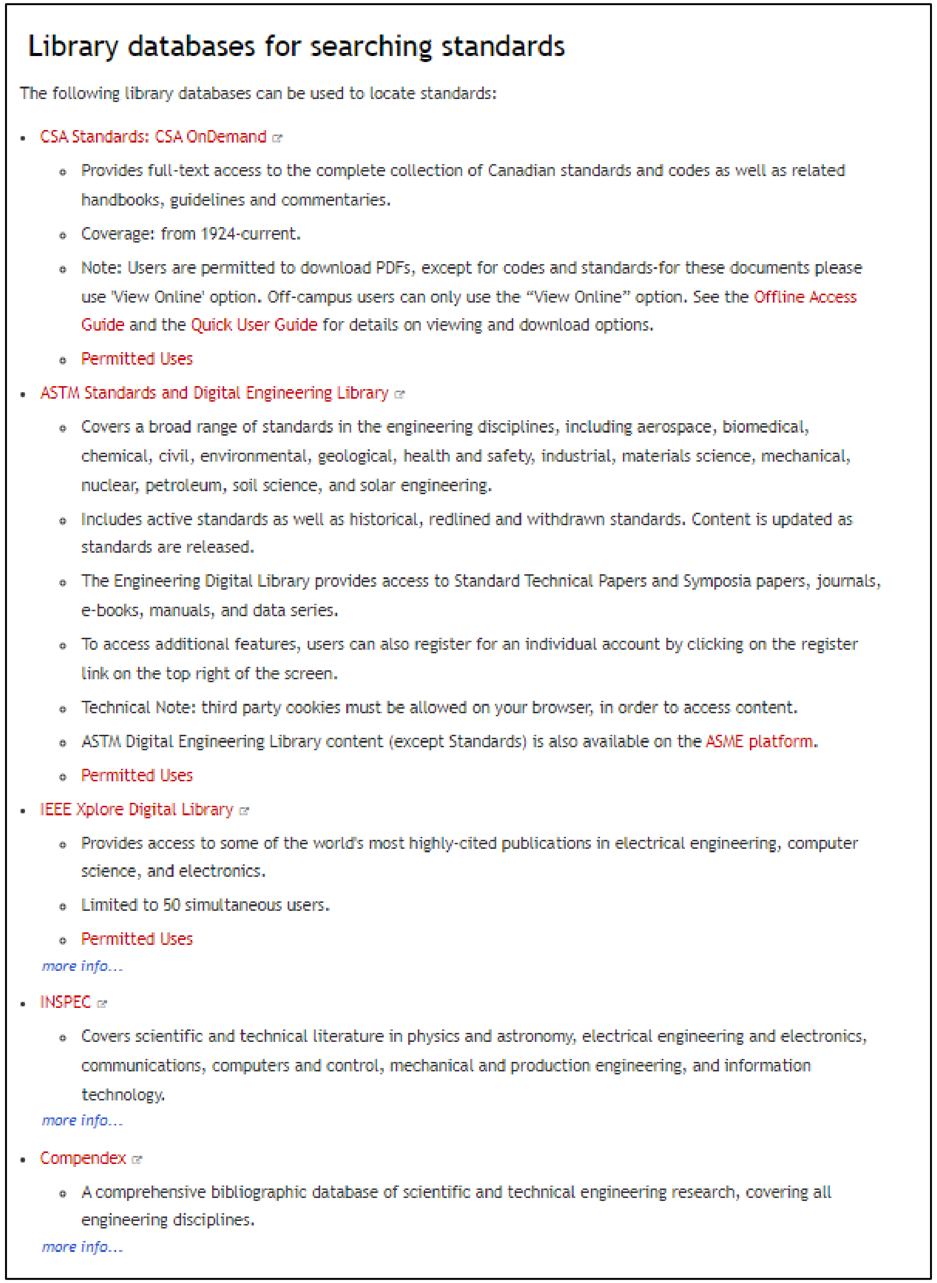

Library databases for searching standards

The following library databases can be used to locate standards:

- CSA Standards: CSA OnDemand
    - Provides full-text access to the complete collection of Canadian standards and codes as well as related handbooks, guidelines and commentaries.
    - Coverage: from 1924-current.
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    - Permitted Uses
- ASTM Standards and Digital Engineering Library
    - Covers a broad range of standards in the engineering disciplines, including aerospace, biomedical, chemical, civil, environmental, geological, health and safety, industrial, materials science, mechanical, nuclear, petroleum, soil science, and solar engineering.
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- INSPEC
    - Covers scientific and technical literature in physics and astronomy, electrical engineering and electronics, communications, computers and control, mechanical and production engineering, and information technology.

  more info...
- Compendex
    - A comprehensive bibliographic database of scientific and technical engineering research, covering all engineering disciplines.

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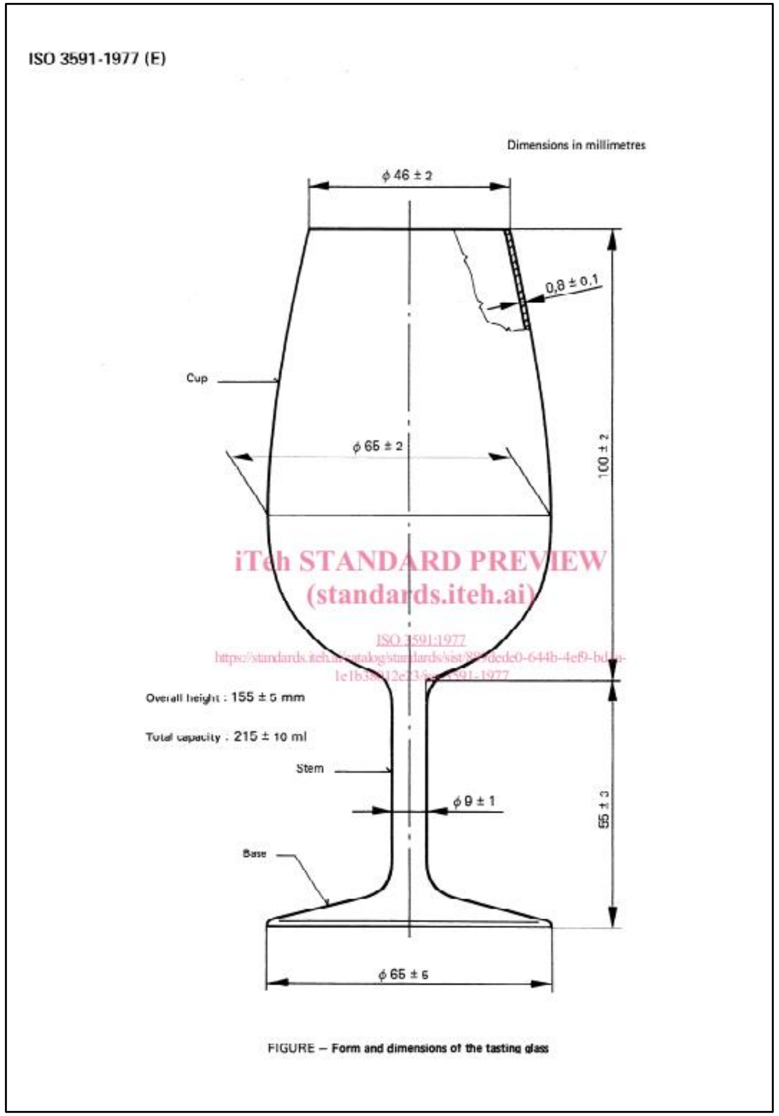
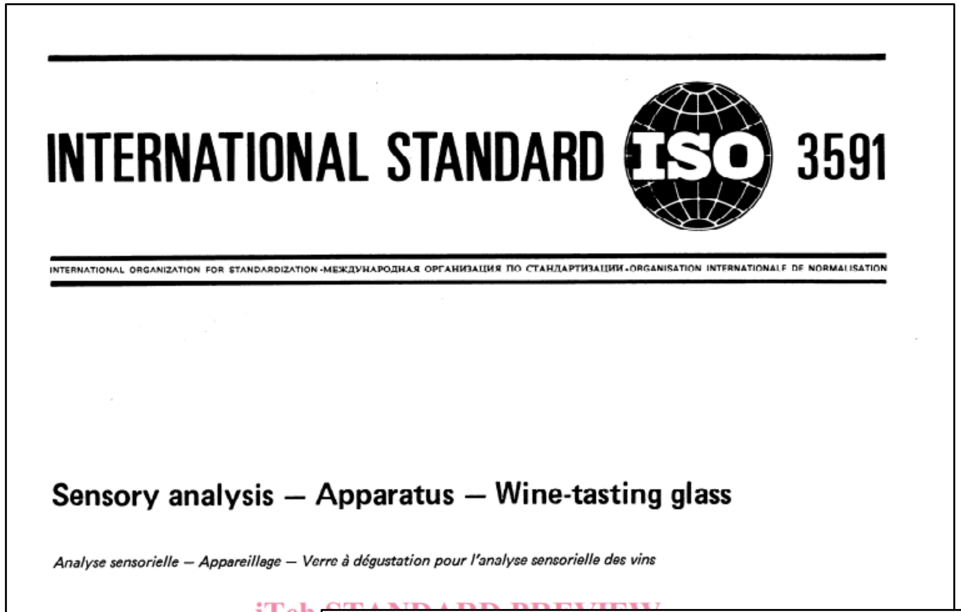


ISO 3591-1977 (E)

Dimensions in millimetres
ϕ 46 ± 2
0,8 ± 0,1
Cup
ϕ 65 ± 2
100 ± 2
Overall height : 155 ± 5 mm
Total capacity : 215 ± 10 ml
Stem
ϕ 9 ± 1
65 ± 3
Base
ϕ 65 ± 5

FIGURE – Form and dimensions of the tasting glass

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ISO 3591:1977



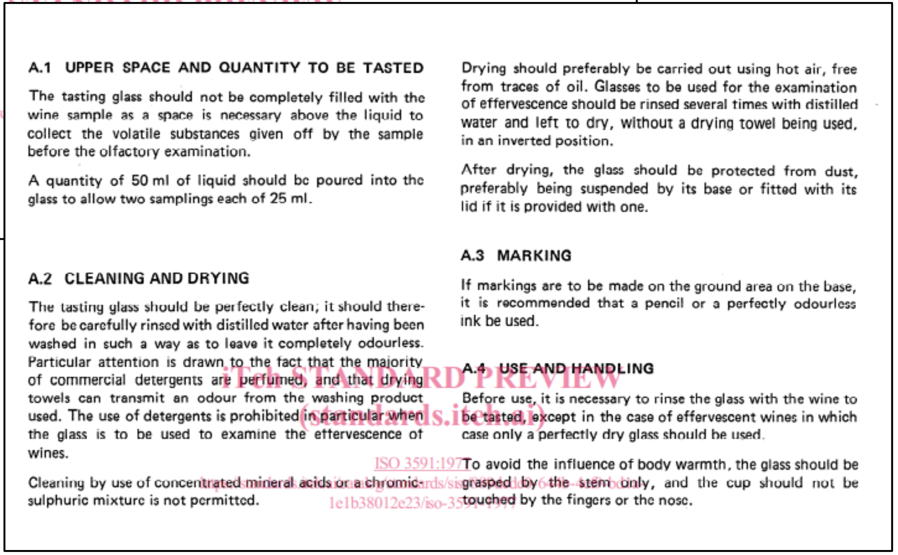
INTERNATIONAL STANDARD 3591

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Sensory analysis — Apparatus — Wine-tasting glass

Analyse sensorielle — Appareillage — Verre à dégustation pour l'analyse sensorielle des vins

First edition — 1977-06-01



A.1 UPPER SPACE AND QUANTITY TO BE TASTED

The tasting glass should not be completely filled with the wine sample as a space is necessary above the liquid to collect the volatile substances given off by the sample before the olfactory examination.

A quantity of 50 ml of liquid should be poured into the glass to allow two samplings each of 25 ml.

A.2 CLEANING AND DRYING

The tasting glass should be perfectly clean; it should therefore be carefully rinsed with distilled water after having been washed in such a way as to leave it completely odourless. Particular attention is drawn to the fact that the majority of commercial detergents are perfumed, and that drying towels can transmit an odour from the washing product used. The use of detergents is prohibited in particular when the glass is to be used to examine the effervescence of wines.

Cleaning by use of concentrated mineral acids or a chromic-sulphuric mixture is not permitted.

Drying should preferably be carried out using hot air, free from traces of oil. Glasses to be used for the examination of effervescence should be rinsed several times with distilled water and left to dry, without a drying towel being used, in an inverted position.

After drying, the glass should be protected from dust, preferably being suspended by its base or fitted with its lid if it is provided with one.

A.3 MARKING

If markings are to be made on the ground area on the base, it is recommended that a pencil or a perfectly odourless ink be used.

A.4 USE AND HANDLING

Before use, it is necessary to rinse the glass with the wine to be tasted, except in the case of effervescent wines in which case only a perfectly dry glass should be used.

To avoid the influence of body warmth, the glass should be grasped by the stem only, and the cup should not be touched by the fingers or the nose.

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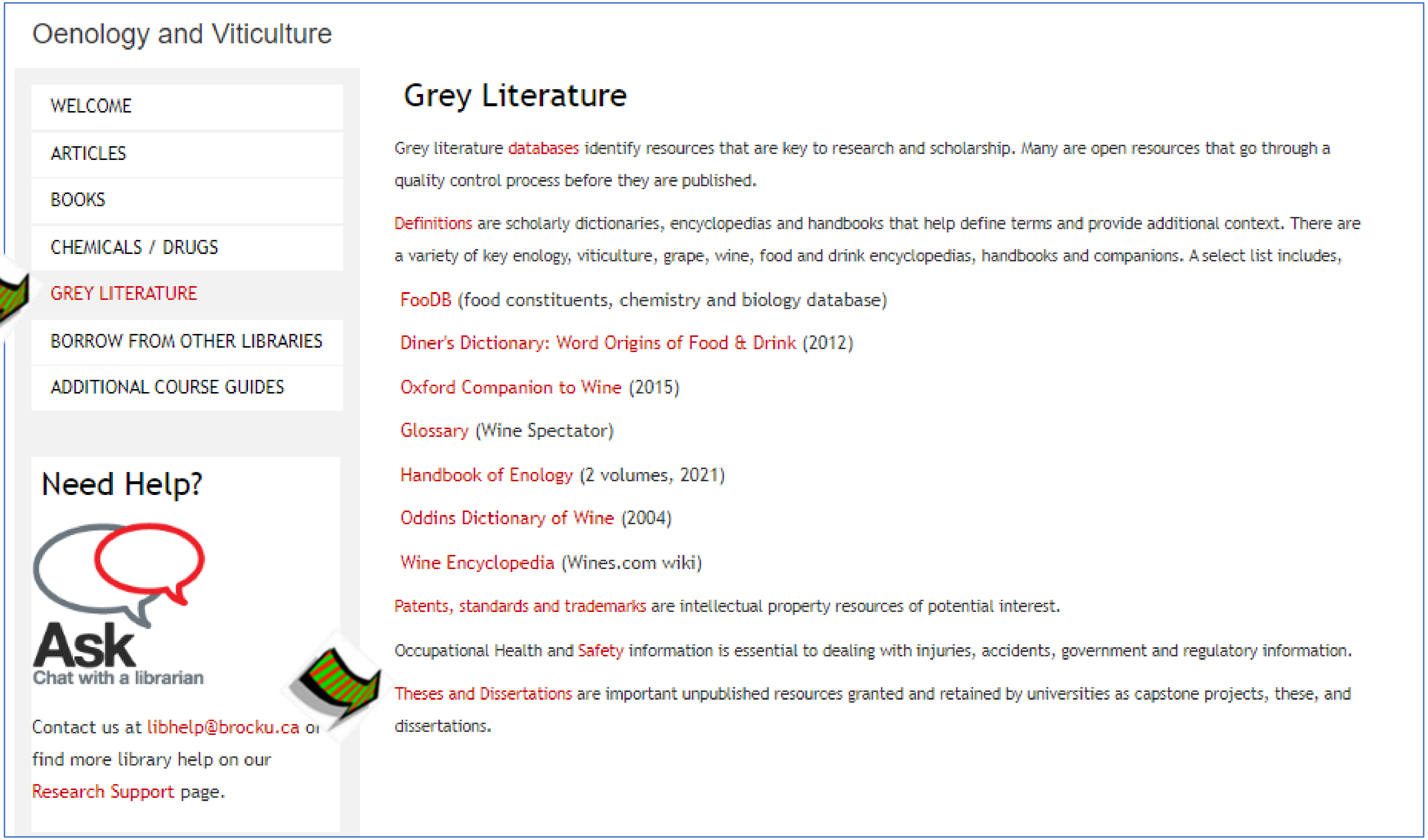
ISO 3591:1977



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Handbook of Enology (2 volumes, 2021)

Oddins Dictionary of Wine (2004)

Wine Encyclopedia (Wines.com wiki)

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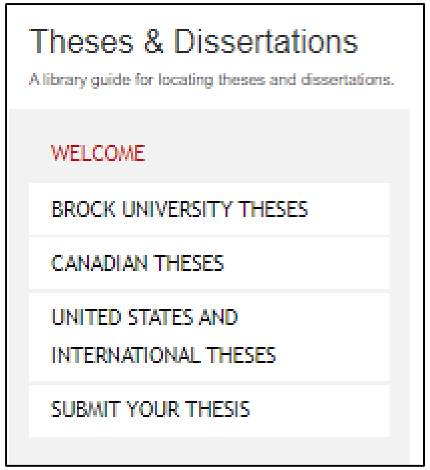

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- CANADIAN THESES
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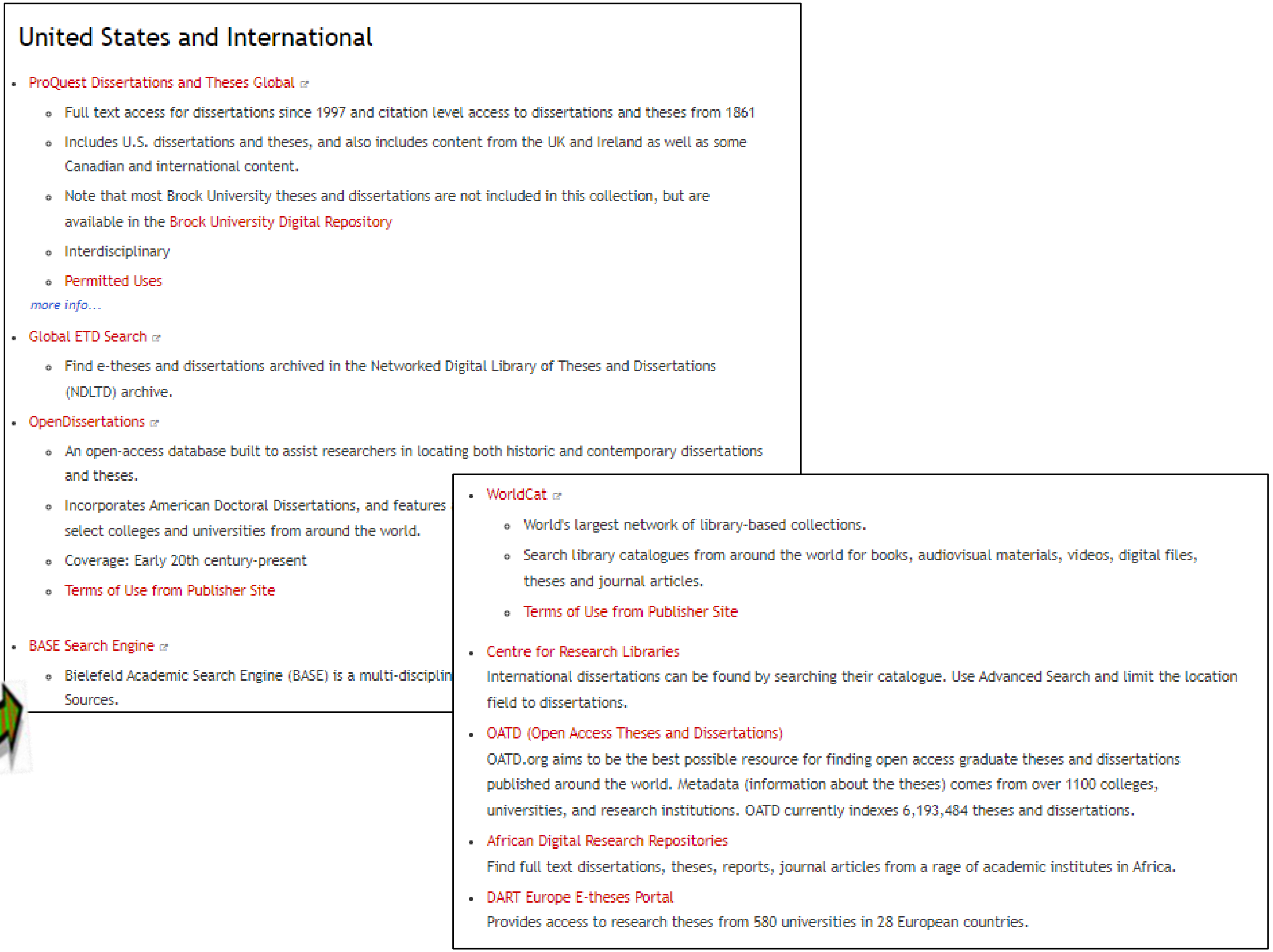

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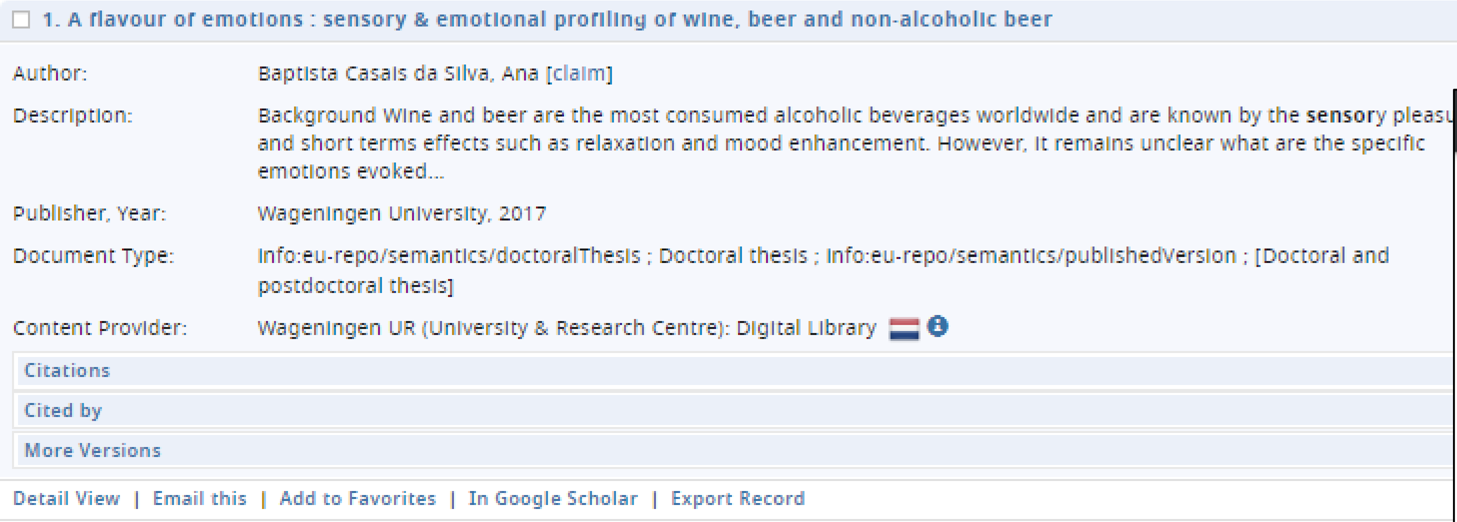
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Author:	Baptista Casais da Silva, Ana [claim]
Description:	Background Wine and beer are the most consumed alcoholic beverages worldwide and are known by the **sensor**y pleasu and short terms effects such as relaxation and mood enhancement. However, it remains unclear what are the specific emotions evoked...
Publisher, Year:	Wageningen University, 2017
Document Type:	info:eu-repo/semantics/doctoralThesis ; Doctoral thesis ; info:eu-repo/semantics/publishedVersion ; [Doctoral and postdoctoral thesis]
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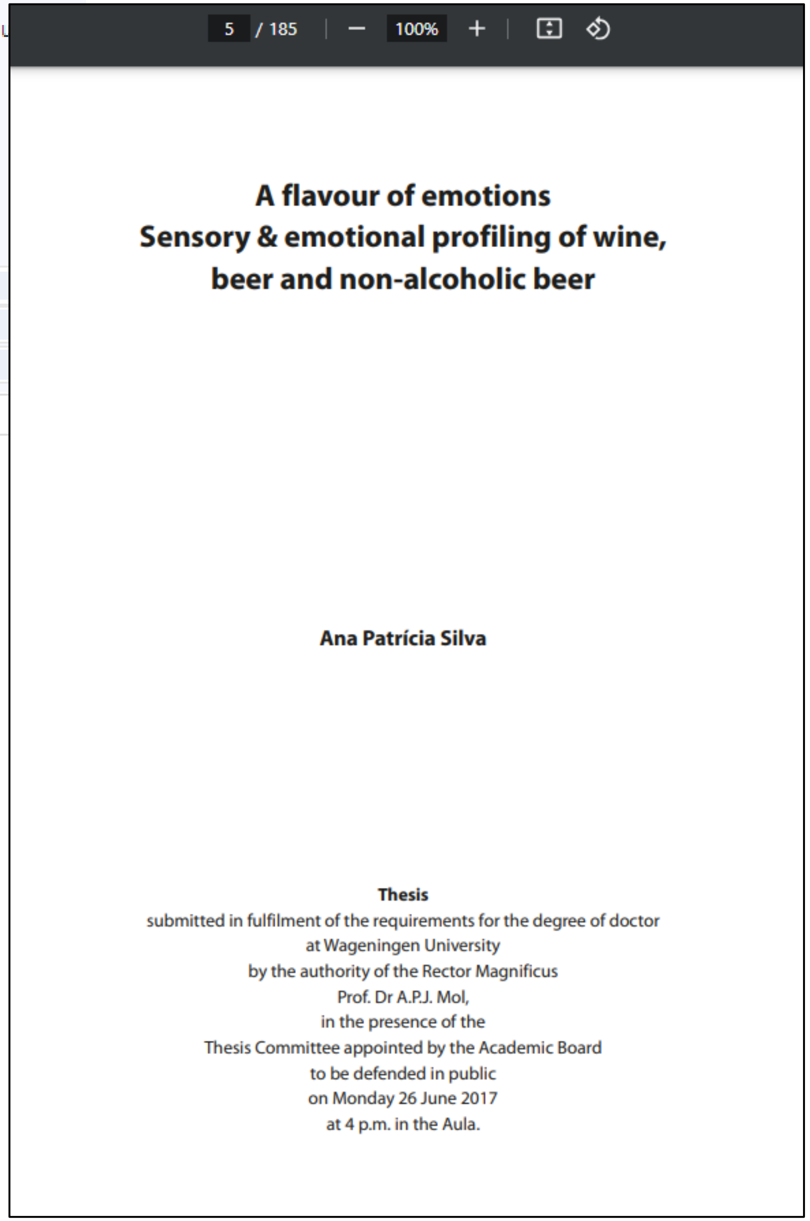
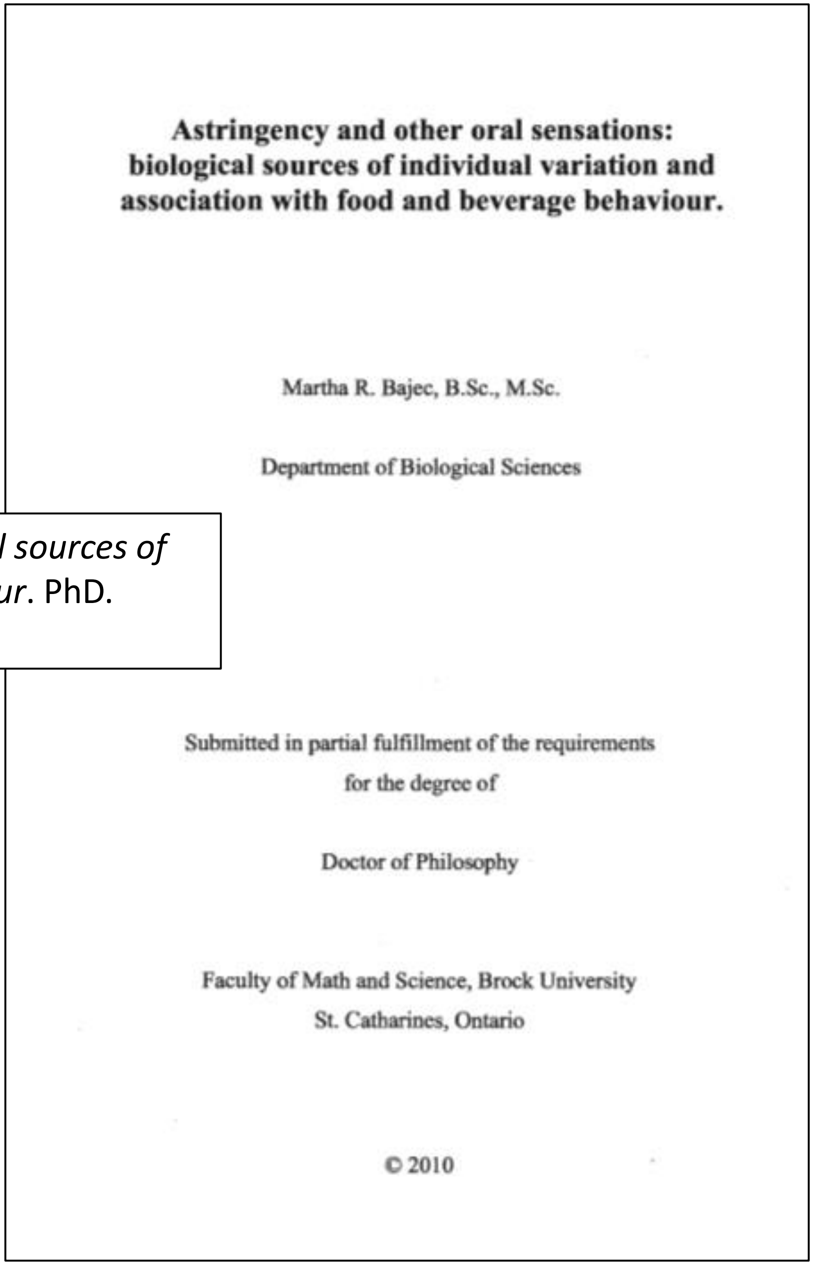


A flavour of emotions
Sensory & emotional profiling of wine, beer and non-alcoholic beer

Ana Patrícia Silva

Thesis
submitted in fulfilment of the requirements for the degree of doctor
at Wageningen University
by the authority of the Rector Magnificus
Prof. Dr A.P.J. Mol,
in the presence of the
Thesis Committee appointed by the Academic Board
to be defended in public
on Monday 26 June 2017
at 4 p.m. in the Aula.

Bajec, M. R. (2011). *Astringency and other oral sensations : biological sources of individual variation and association with food and beverage behaviour*. PhD. Dissertation. St. Catharines: Brock University.



Astringency and other oral sensations: biological sources of individual variation and association with food and beverage behaviour.

Martha R. Bajec, B.Sc., M.Sc.

Department of Biological Sciences

Submitted in partial fulfillment of the requirements
for the degree of

Doctor of Philosophy

Faculty of Math and Science, Brock University
St. Catharines, Ontario

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- Top 10 resources you should know about!
- Brock Library OEVI Library Research Guide
- Scholarly databases – lots of them!
- Citation management
- Where, how and when to get help

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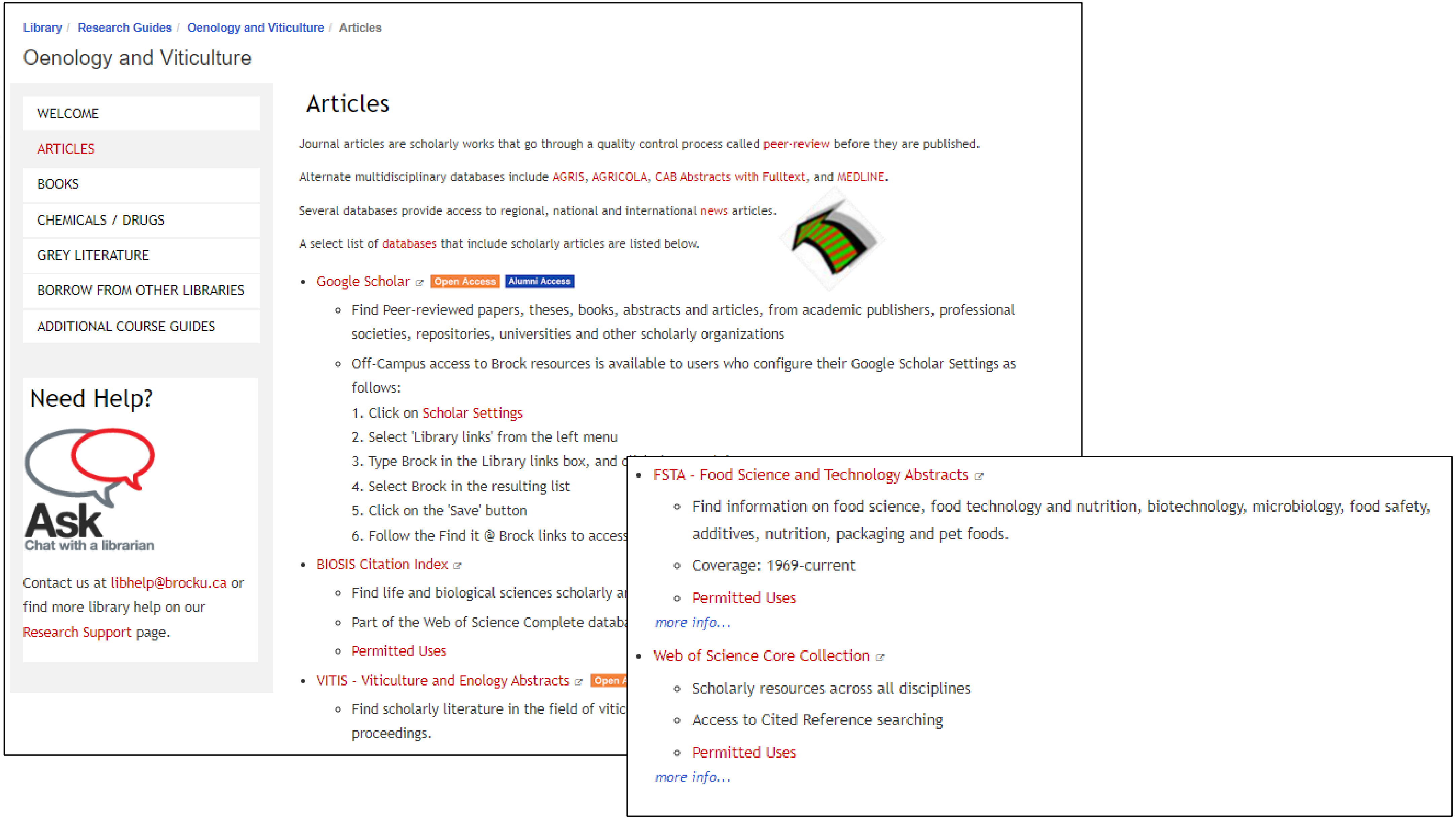
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Several databases provide access to regional, national and international news articles.

A select list of databases that include scholarly articles are listed below.

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  - Off-Campus access to Brock resources is available to users who configure their Google Scholar Settings as follows:
    1. Click on Scholar Settings
    2. Select 'Library links' from the left menu
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  - Find scholarly literature in the field of vitic proceedings.

- FSTA - Food Science and Technology Abstracts
  - Find information on food science, food technology and nutrition, biotechnology, microbiology, food safety, additives, nutrition, packaging and pet foods.
  - Coverage: 1969-current
  - Permitted Uses

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Elicit

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A **Digital Science** Solution

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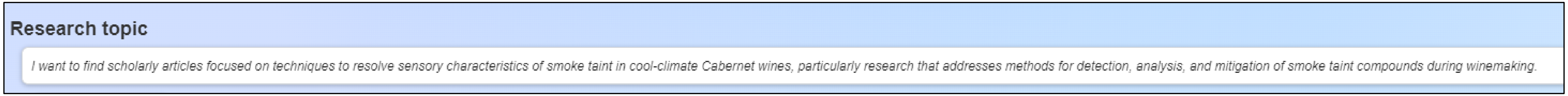
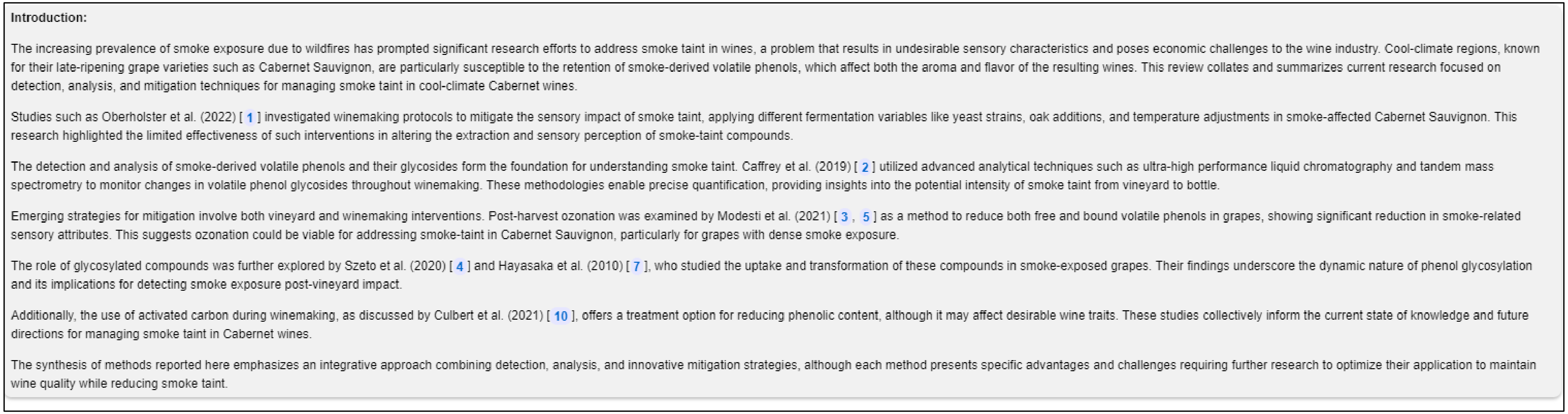


Research topic

I want to find scholarly articles focused on techniques to resolve sensory characteristics of smoke taint in cool-climate Cabernet wines, particularly research that addresses methods for detection, analysis, and mitigation of smoke taint compounds during winemaking.



Introduction:

The increasing prevalence of smoke exposure due to wildfires has prompted significant research efforts to address smoke taint in wines, a problem that results in undesirable sensory characteristics and poses economic challenges to the wine industry. Cool-climate regions, known for their late-ripening grape varieties such as Cabernet Sauvignon, are particularly susceptible to the retention of smoke-derived volatile phenols, which affect both the aroma and flavor of the resulting wines. This review collates and summarizes current research focused on detection, analysis, and mitigation techniques for managing smoke taint in cool-climate Cabernet wines.

Studies such as Oberholster et al. (2022) [1] investigated winemaking protocols to mitigate the sensory impact of smoke taint, applying different fermentation variables like yeast strains, oak additions, and temperature adjustments in smoke-affected Cabernet Sauvignon. This research highlighted the limited effectiveness of such interventions in altering the extraction and sensory perception of smoke-taint compounds.

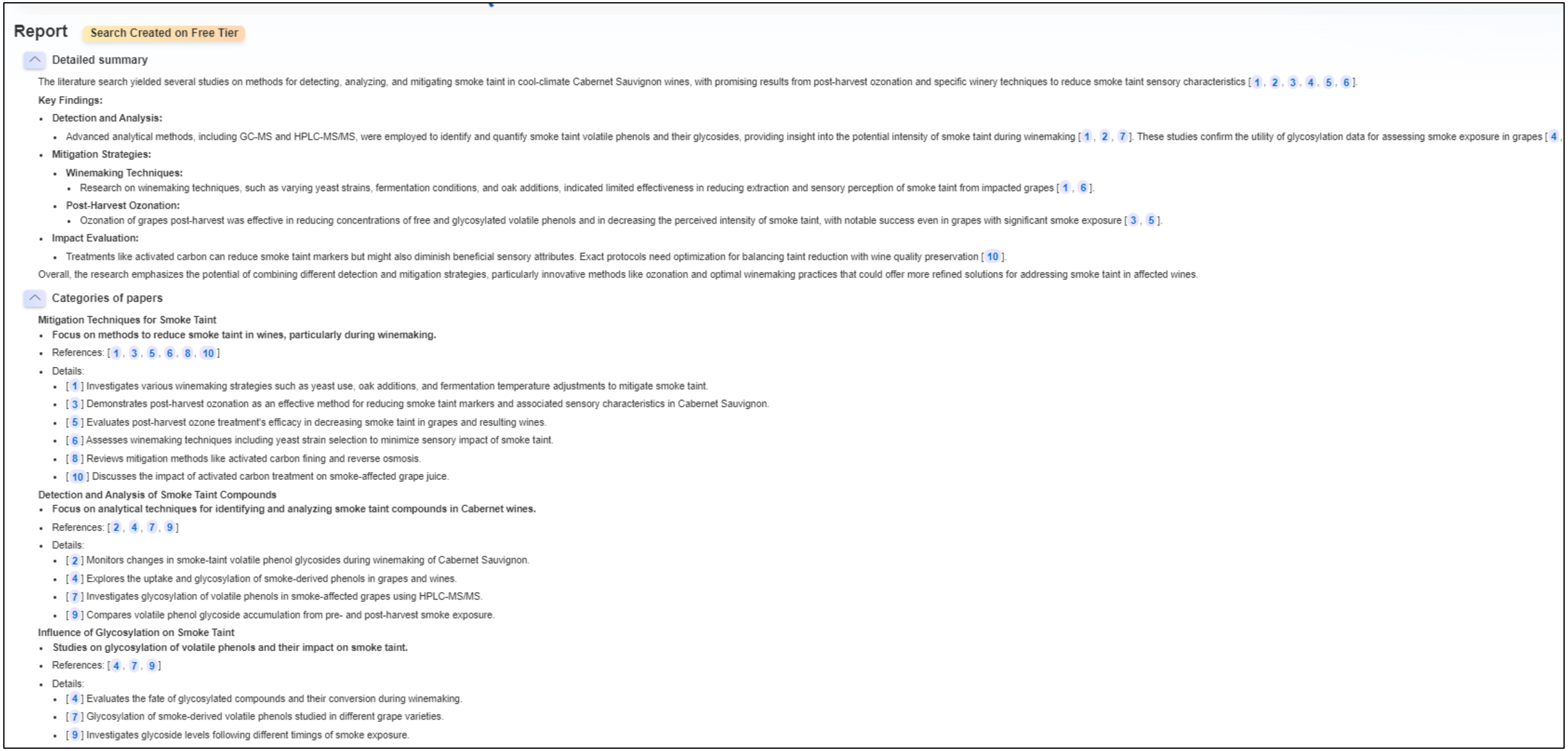
The detection and analysis of smoke-derived volatile phenols and their glycosides form the foundation for understanding smoke taint. Caffrey et al. (2019) [2] utilized advanced analytical techniques such as ultra-high performance liquid chromatography and tandem mass spectrometry to monitor changes in volatile phenol glycosides throughout winemaking. These methodologies enable precise quantification, providing insights into the potential intensity of smoke taint from vineyard to bottle.

Emerging strategies for mitigation involve both vineyard and winemaking interventions. Post-harvest ozonation was examined by Modesti et al. (2021) [3 , 5] as a method to reduce both free and bound volatile phenols in grapes, showing significant reduction in smoke-related sensory attributes. This suggests ozonation could be viable for addressing smoke-taint in Cabernet Sauvignon, particularly for grapes with dense smoke exposure.

The role of glycosylated compounds was further explored by Szeto et al. (2020) [4] and Hayasaka et al. (2010) [7], who studied the uptake and transformation of these compounds in smoke-exposed grapes. Their findings underscore the dynamic nature of phenol glycosylation and its implications for detecting smoke exposure post-vineyard impact.

Additionally, the use of activated carbon during winemaking, as discussed by Culbert et al. (2021) [10], offers a treatment option for reducing phenolic content, although it may affect desirable wine traits. These studies collectively inform the current state of knowledge and future directions for managing smoke taint in Cabernet wines.

The synthesis of methods reported here emphasizes an integrative approach combining detection, analysis, and innovative mitigation strategies, although each method presents specific advantages and challenges requiring further research to optimize their application to maintain wine quality while reducing smoke taint.



Report

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Detailed summary

The literature search yielded several studies on methods for detecting, analyzing, and mitigating smoke taint in cool-climate Cabernet Sauvignon wines, with promising results from post-harvest ozonation and specific winery techniques to reduce smoke taint sensory characteristics [1, 2, 3, 4, 5, 6].

Key Findings:

- **Detection and Analysis:**
  - Advanced analytical methods, including GC-MS and HPLC-MS/MS, were employed to identify and quantify smoke taint volatile phenols and their glycosides, providing insight into the potential intensity of smoke taint during winemaking [1, 2, 7]. These studies confirm the utility of glycosylation data for assessing smoke exposure in grapes [4
- **Mitigation Strategies:**
  - **Winemaking Techniques:**
    - Research on winemaking techniques, such as varying yeast strains, fermentation conditions, and oak additions, indicated limited effectiveness in reducing extraction and sensory perception of smoke taint from impacted grapes [1, 6].
  - **Post-Harvest Ozonation:**
    - Ozonation of grapes post-harvest was effective in reducing concentrations of free and glycosylated volatile phenols and in decreasing the perceived intensity of smoke taint, with notable success even in grapes with significant smoke exposure [3, 5].
- **Impact Evaluation:**
  - Treatments like activated carbon can reduce smoke taint markers but might also diminish beneficial sensory attributes. Exact protocols need optimization for balancing taint reduction with wine quality preservation [10].

Overall, the research emphasizes the potential of combining different detection and mitigation strategies, particularly innovative methods like ozonation and optimal winemaking practices that could offer more refined solutions for addressing smoke taint in affected wines.

Categories of papers

Mitigation Techniques for Smoke Taint

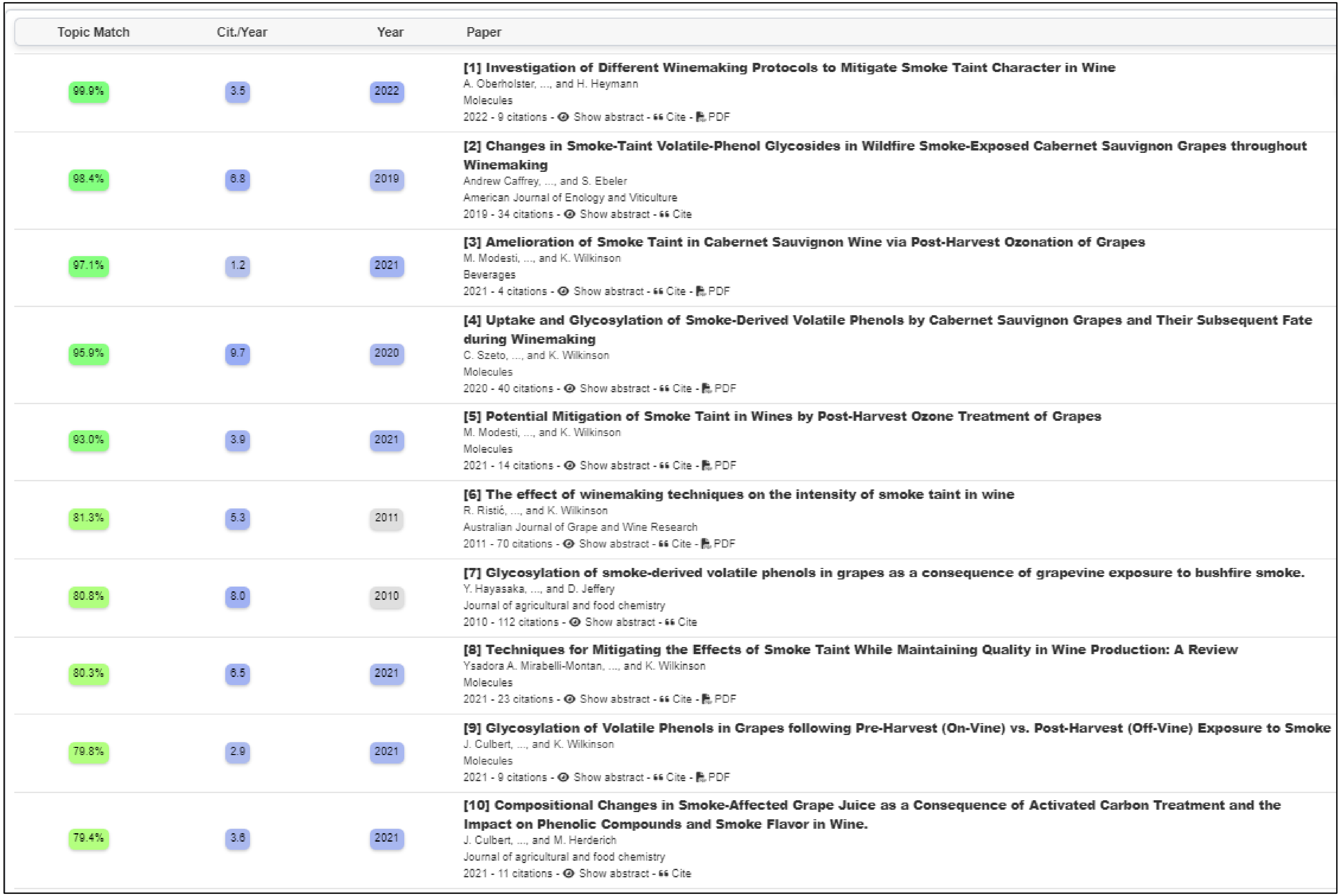
- **Focus on methods to reduce smoke taint in wines, particularly during winemaking.**
- References: [1, 3, 5, 6, 8, 10]
- Details:
  - [1] Investigates various winemaking strategies such as yeast use, oak additions, and fermentation temperature adjustments to mitigate smoke taint.
  - [3] Demonstrates post-harvest ozonation as an effective method for reducing smoke taint markers and associated sensory characteristics in Cabernet Sauvignon.
  - [5] Evaluates post-harvest ozone treatment's efficacy in decreasing smoke taint in grapes and resulting wines.
  - [6] Assesses winemaking techniques including yeast strain selection to minimize sensory impact of smoke taint.
  - [8] Reviews mitigation methods like activated carbon fining and reverse osmosis.
  - [10] Discusses the impact of activated carbon treatment on smoke-affected grape juice.

Detection and Analysis of Smoke Taint Compounds

- **Focus on analytical techniques for identifying and analyzing smoke taint compounds in Cabernet wines.**
- References: [2, 4, 7, 9]
- Details:
  - [2] Monitors changes in smoke-taint volatile phenol glycosides during winemaking of Cabernet Sauvignon.
  - [4] Explores the uptake and glycosylation of smoke-derived phenols in grapes and wines.
  - [7] Investigates glycosylation of volatile phenols in smoke-affected grapes using HPLC-MS/MS.
  - [9] Compares volatile phenol glycoside accumulation from pre- and post-harvest smoke exposure.

Influence of Glycosylation on Smoke Taint

- **Studies on glycosylation of volatile phenols and their impact on smoke taint.**
- References: [4, 7, 9]
- Details:
  - [4] Evaluates the fate of glycosylated compounds and their conversion during winemaking.
  - [7] Glycosylation of smoke-derived volatile phenols studied in different grape varieties.
  - [9] Investigates glycoside levels following different timings of smoke exposure.



Topic Match	Cit./Year	Year	Paper
99.9%	3.5	2022	**[1] Investigation of Different Winemaking Protocols to Mitigate Smoke Taint Character in Wine** A. Oberholster, ..., and H. Heymann Molecules 2022 - 9 citations - 👁 Show abstract - “ Cite - 🗎 PDF
98.4%	6.8	2019	**[2] Changes in Smoke-Taint Volatile-Phenol Glycosides in Wildfire Smoke-Exposed Cabernet Sauvignon Grapes throughout Winemaking** Andrew Caffrey, ..., and S. Ebeler American Journal of Enology and Viticulture 2019 - 34 citations - 👁 Show abstract - “ Cite
97.1%	1.2	2021	**[3] Amelioration of Smoke Taint in Cabernet Sauvignon Wine via Post-Harvest Ozonation of Grapes** M. Modesti, ..., and K. Wilkinson Beverages 2021 - 4 citations - 👁 Show abstract - “ Cite - 🗎 PDF
95.9%	9.7	2020	**[4] Uptake and Glycosylation of Smoke-Derived Volatile Phenols by Cabernet Sauvignon Grapes and Their Subsequent Fate during Winemaking** C. Szeto, ..., and K. Wilkinson Molecules 2020 - 40 citations - 👁 Show abstract - “ Cite - 🗎 PDF
93.0%	3.9	2021	**[5] Potential Mitigation of Smoke Taint in Wines by Post-Harvest Ozone Treatment of Grapes** M. Modesti, ..., and K. Wilkinson Molecules 2021 - 14 citations - 👁 Show abstract - “ Cite - 🗎 PDF
81.3%	5.3	2011	**[6] The effect of winemaking techniques on the intensity of smoke taint in wine** R. Ristić, ..., and K. Wilkinson Australian Journal of Grape and Wine Research 2011 - 70 citations - 👁 Show abstract - “ Cite - 🗎 PDF
80.8%	8.0	2010	**[7] Glycosylation of smoke-derived volatile phenols in grapes as a consequence of grapevine exposure to bushfire smoke.** Y. Hayasaka, ..., and D. Jeffery Journal of agricultural and food chemistry 2010 - 112 citations - 👁 Show abstract - “ Cite
80.3%	6.5	2021	**[8] Techniques for Mitigating the Effects of Smoke Taint While Maintaining Quality in Wine Production: A Review** Ysadora A. Mirabelli-Montan, ..., and K. Wilkinson Molecules 2021 - 23 citations - 👁 Show abstract - “ Cite - 🗎 PDF
79.8%	2.9	2021	**[9] Glycosylation of Volatile Phenols in Grapes following Pre-Harvest (On-Vine) vs. Post-Harvest (Off-Vine) Exposure to Smoke** J. Culbert, ..., and K. Wilkinson Molecules 2021 - 9 citations - 👁 Show abstract - “ Cite - 🗎 PDF
79.4%	3.6	2021	**[10] Compositional Changes in Smoke-Affected Grape Juice as a Consequence of Activated Carbon Treatment and the Impact on Phenolic Compounds and Smoke Flavor in Wine.** J. Culbert, ..., and M. Herderich Journal of agricultural and food chemistry 2021 - 11 citations - 👁 Show abstract - “ Cite

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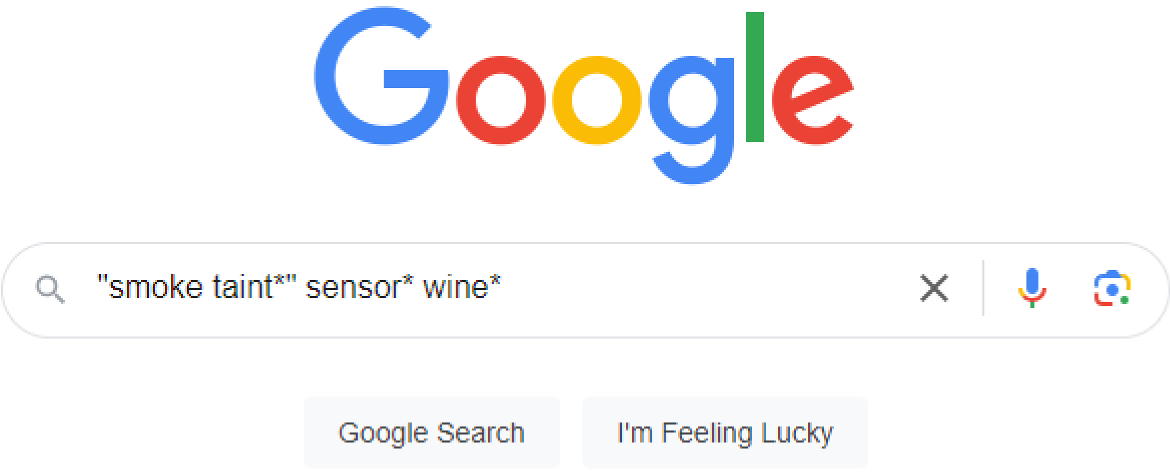

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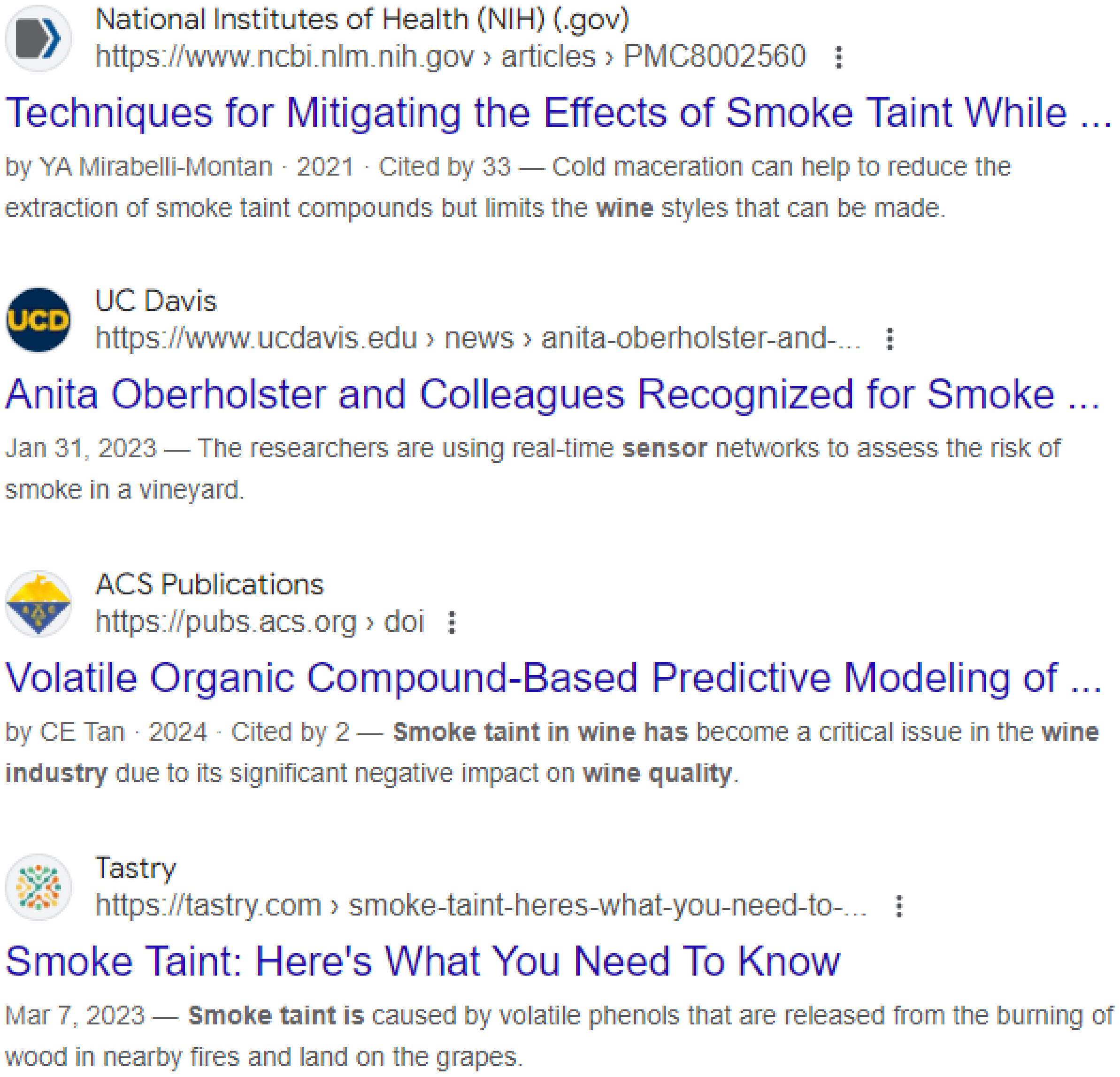

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Techniques for Mitigating the Effects of Smoke Taint While ...

by YA Mirabelli-Montan · 2021 · Cited by 33 — Cold maceration can help to reduce the extraction of smoke taint compounds but limits the **wine** styles that can be made.

UC Davis
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Anita Oberholster and Colleagues Recognized for Smoke ...

Jan 31, 2023 — The researchers are using real-time **sensor** networks to assess the risk of smoke in a vineyard.

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Volatile Organic Compound-Based Predictive Modeling of ...

by CE Tan · 2024 · Cited by 2 — **Smoke taint in wine has** become a critical issue in the **wine industry** due to its significant negative impact on **wine quality**.

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Smoke Taint: Here's What You Need To Know

Mar 7, 2023 — **Smoke taint is** caused by volatile phenols that are released from the burning of wood in nearby fires and land on the grapes.

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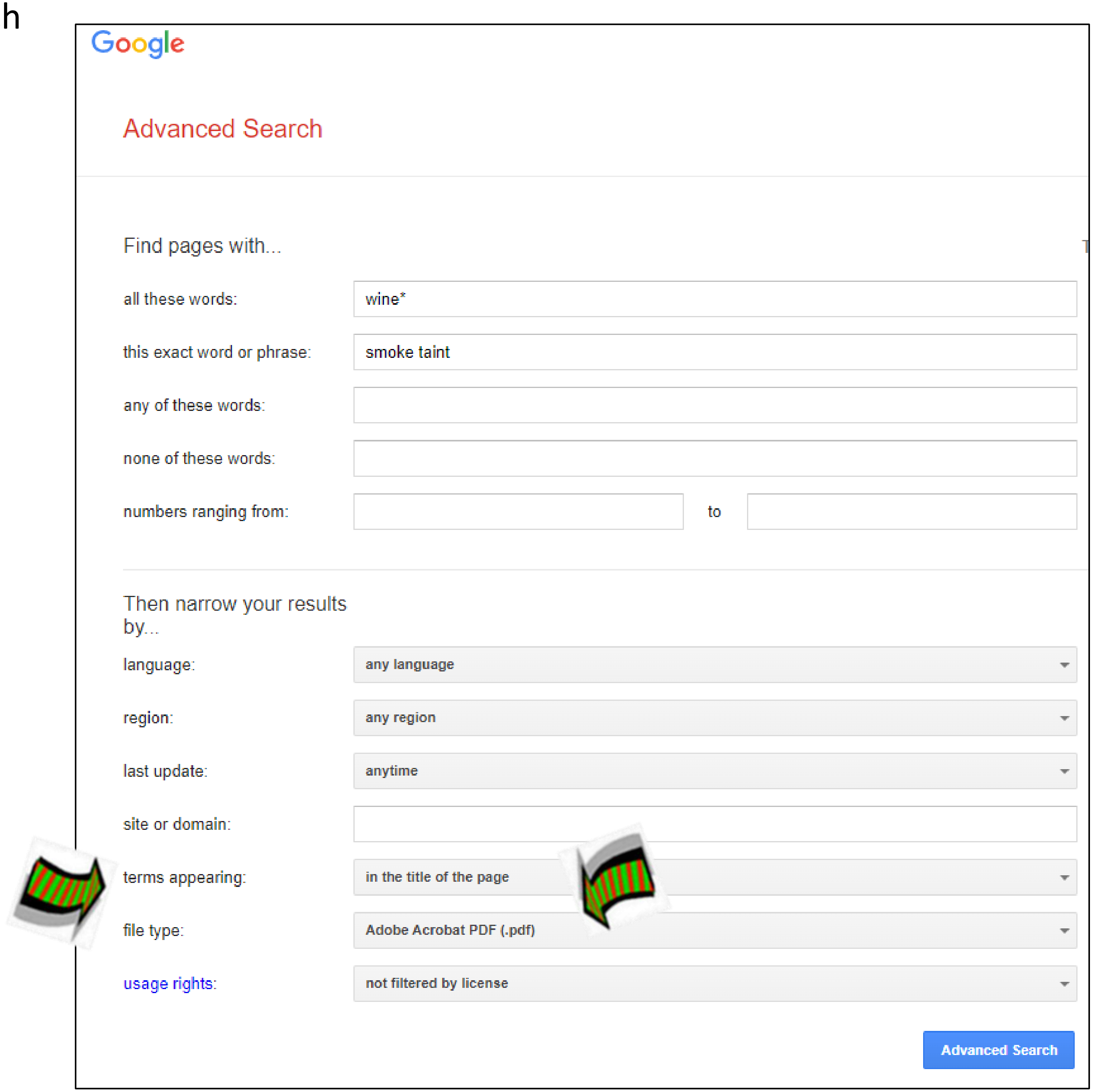

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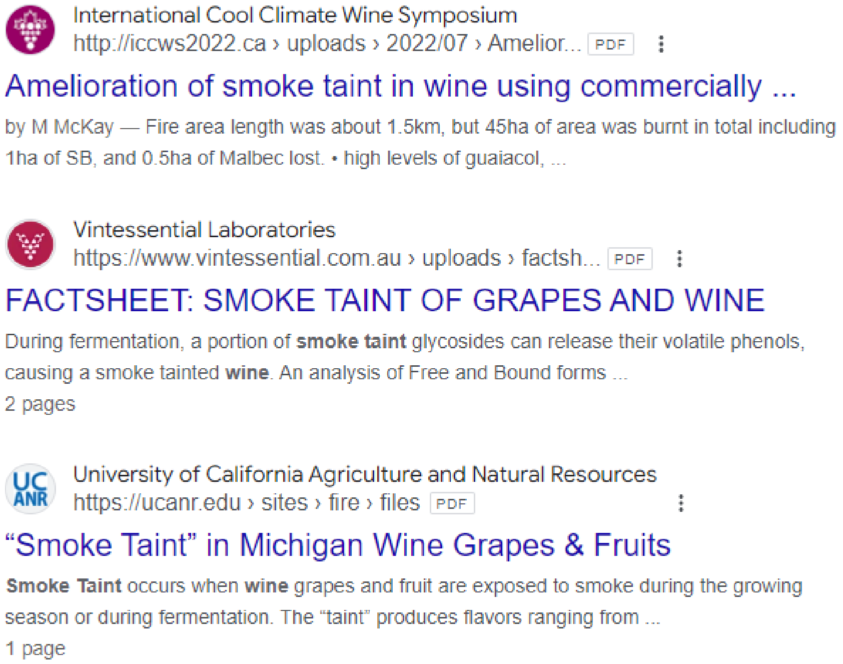

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by M McKay — Fire area length was about 1.5km, but 45ha of area was burnt in total including 1ha of SB, and 0.5ha of Malbec lost. • high levels of guaiacol, ...

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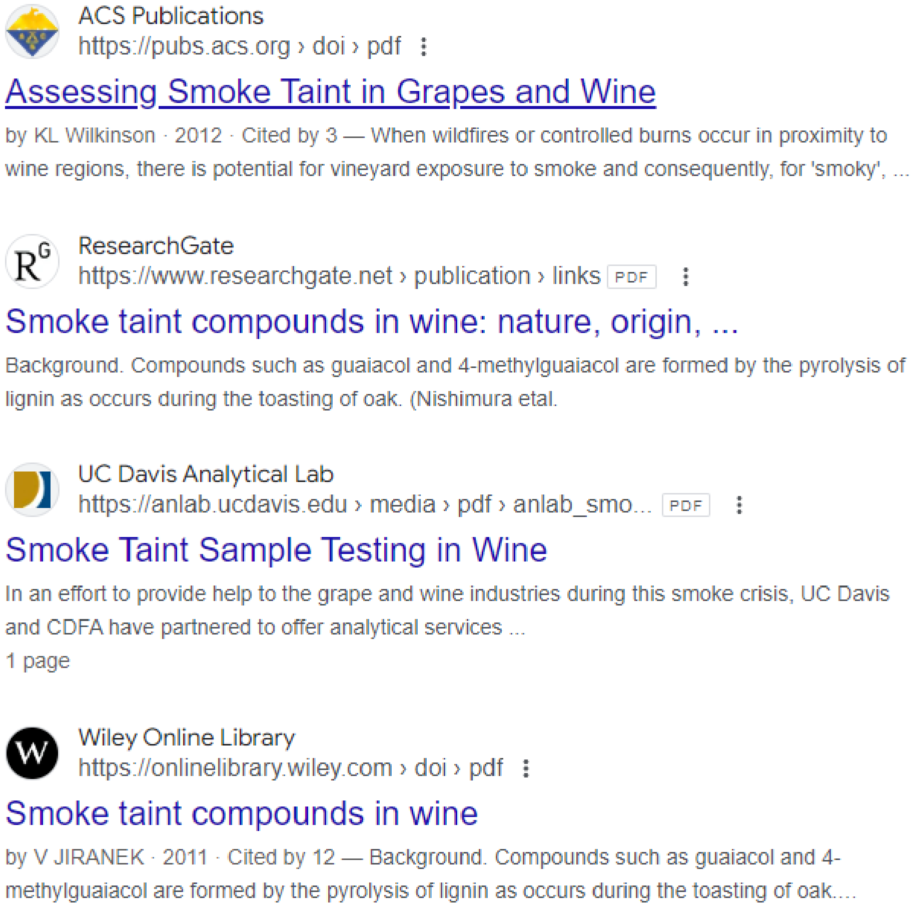

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Assessing Smoke Taint in Grapes and Wine

by KL Wilkinson · 2012 · Cited by 3 — When wildfires or controlled burns occur in proximity to wine regions, there is potential for vineyard exposure to smoke and consequently, for 'smoky', ...

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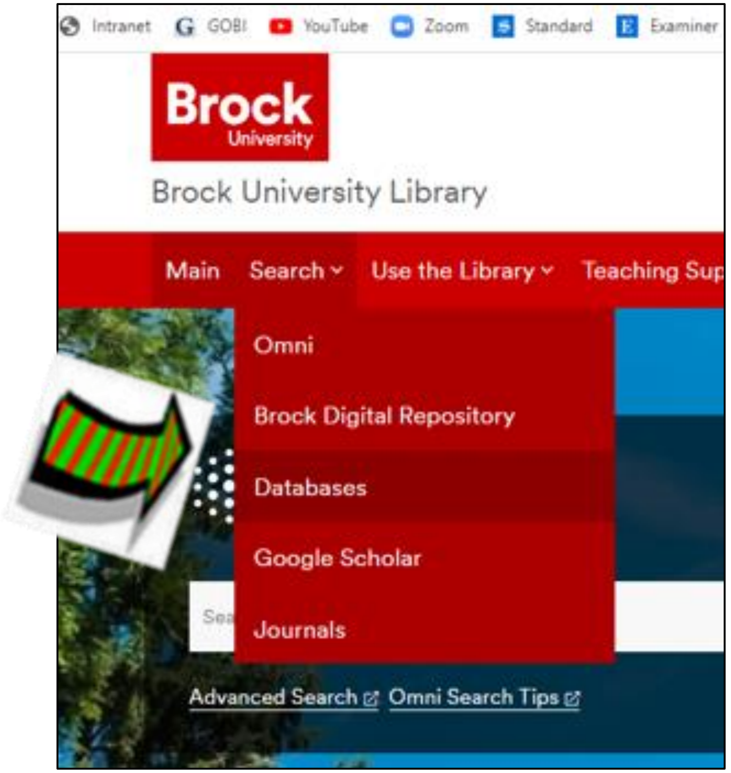

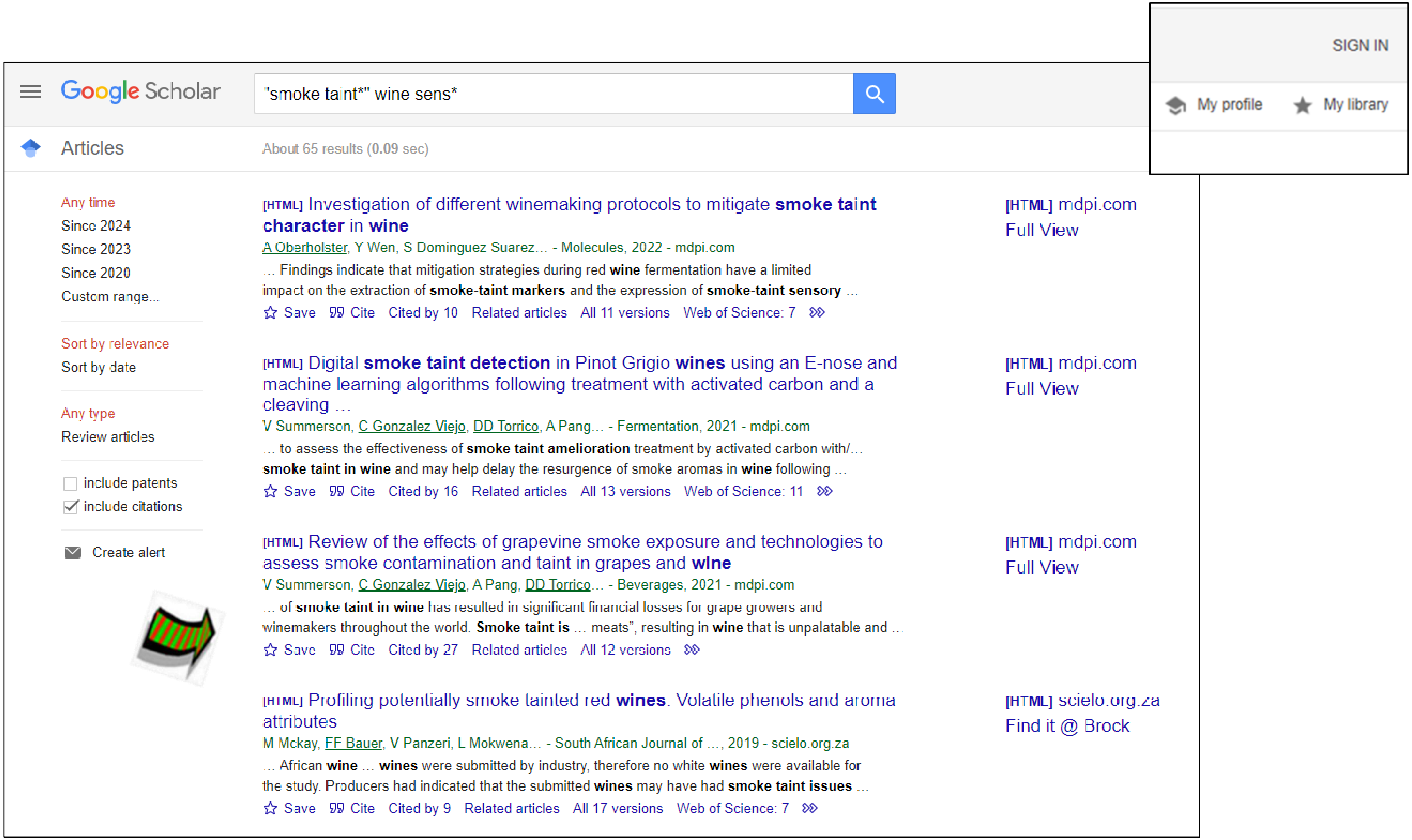

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… African **wine** … **wines** were submitted by industry, therefore no white **wines** were available for the study. Producers had indicated that the submitted **wines** may have had **smoke taint issues** …

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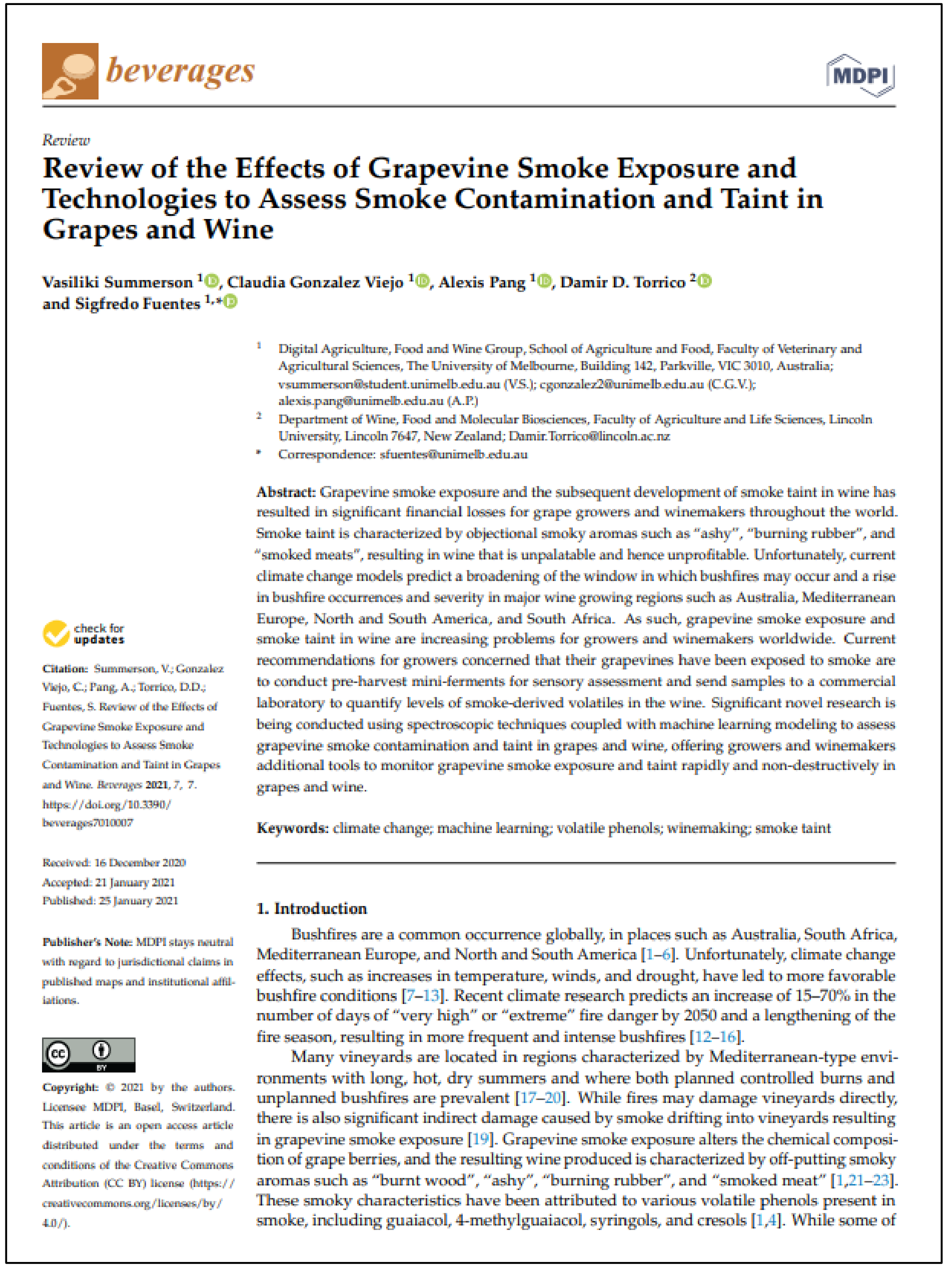

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Review

Review of the Effects of Grapevine Smoke Exposure and Technologies to Assess Smoke Contamination and Taint in Grapes and Wine

Vasiliki Summerson [1], **Claudia Gonzalez Viejo** [1], **Alexis Pang** [1], **Damir D. Torrico** [2] and **Sigfredo Fuentes** [1,*]

[1] Digital Agriculture, Food and Wine Group, School of Agriculture and Food, Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Building 142, Parkville, VIC 3010, Australia; vsummerson@student.unimelb.edu.au (V.S.); cgonzalez2@unimelb.edu.au (C.G.V.); alexis.pang@unimelb.edu.au (A.P.)

[2] Department of Wine, Food and Molecular Biosciences, Faculty of Agriculture and Life Sciences, Lincoln University, Lincoln 7647, New Zealand; Damir.Torrico@lincoln.ac.nz

* Correspondence: sfuentes@unimelb.edu.au

Abstract: Grapevine smoke exposure and the subsequent development of smoke taint in wine has resulted in significant financial losses for grape growers and winemakers throughout the world. Smoke taint is characterized by objectional smoky aromas such as "ashy", "burning rubber", and "smoked meats", resulting in wine that is unpalatable and hence unprofitable. Unfortunately, current climate change models predict a broadening of the window in which bushfires may occur and a rise in bushfire occurrences and severity in major wine growing regions such as Australia, Mediterranean Europe, North and South America, and South Africa. As such, grapevine smoke exposure and smoke taint in wine are increasing problems for growers and winemakers worldwide. Current recommendations for growers concerned that their grapevines have been exposed to smoke are to conduct pre-harvest mini-ferments for sensory assessment and send samples to a commercial laboratory to quantify levels of smoke-derived volatiles in the wine. Significant novel research is being conducted using spectroscopic techniques coupled with machine learning modeling to assess grapevine smoke contamination and taint in grapes and wine, offering growers and winemakers additional tools to monitor grapevine smoke exposure and taint rapidly and non-destructively in grapes and wine.

Keywords: climate change; machine learning; volatile phenols; winemaking; smoke taint

check for updates

Citation: Summerson, V.; Gonzalez Viejo, C.; Pang, A.; Torrico, D.D.; Fuentes, S. Review of the Effects of Grapevine Smoke Exposure and Technologies to Assess Smoke Contamination and Taint in Grapes and Wine. *Beverages* **2021**, *7*, 7. https://doi.org/10.3390/beverages7010007

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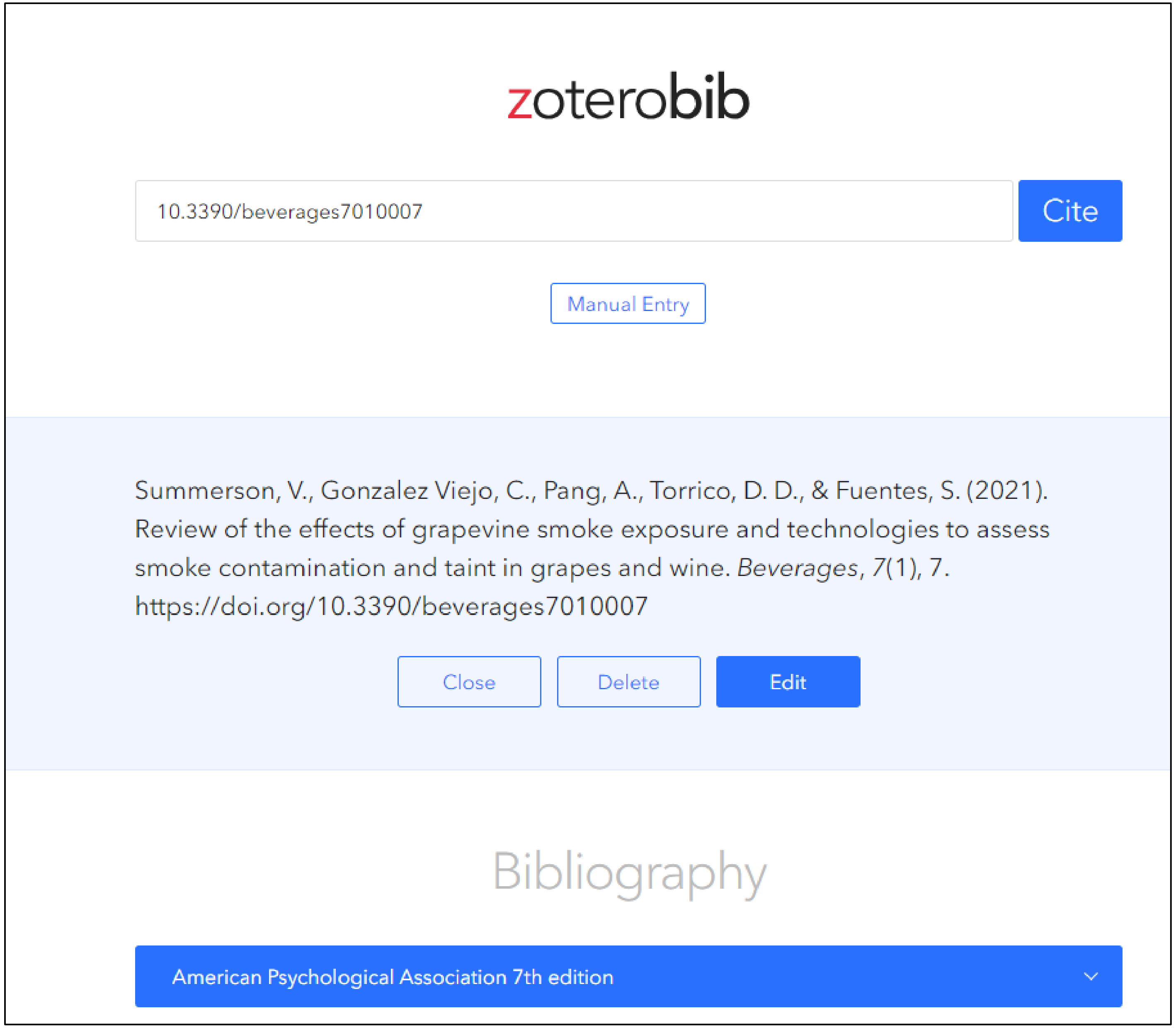
1. Introduction

Bushfires are a common occurrence globally, in places such as Australia, South Africa, Mediterranean Europe, and North and South America [1–6]. Unfortunately, climate change effects, such as increases in temperature, winds, and drought, have led to more favorable bushfire conditions [7–13]. Recent climate research predicts an increase of 15–70% in the number of days of "very high" or "extreme" fire danger by 2050 and a lengthening of the fire season, resulting in more frequent and intense bushfires [12–16].

Many vineyards are located in regions characterized by Mediterranean-type environments with long, hot, dry summers and where both planned controlled burns and unplanned bushfires are prevalent [17–20]. While fires may damage vineyards directly, there is also significant indirect damage caused by smoke drifting into vineyards resulting in grapevine smoke exposure [19]. Grapevine smoke exposure alters the chemical composition of grape berries, and the resulting wine produced is characterized by off-putting smoky aromas such as "burnt wood", "ashy", "burning rubber", and "smoked meat" [1,21–23]. These smoky characteristics have been attributed to various volatile phenols present in smoke, including guaiacol, 4-methylguaiacol, syringols, and cresols [1,4]. While some of https://zbib.org/



Summerson, V., Gonzalez Viejo, C., Pang, A., Torrico, D. D., & Fuentes, S. (2021). Review of the effects of grapevine smoke exposure and technologies to assess smoke contamination and taint in grapes and wine. *Beverages*, *7*(1), 7. https://doi.org/10.3390/beverages7010007

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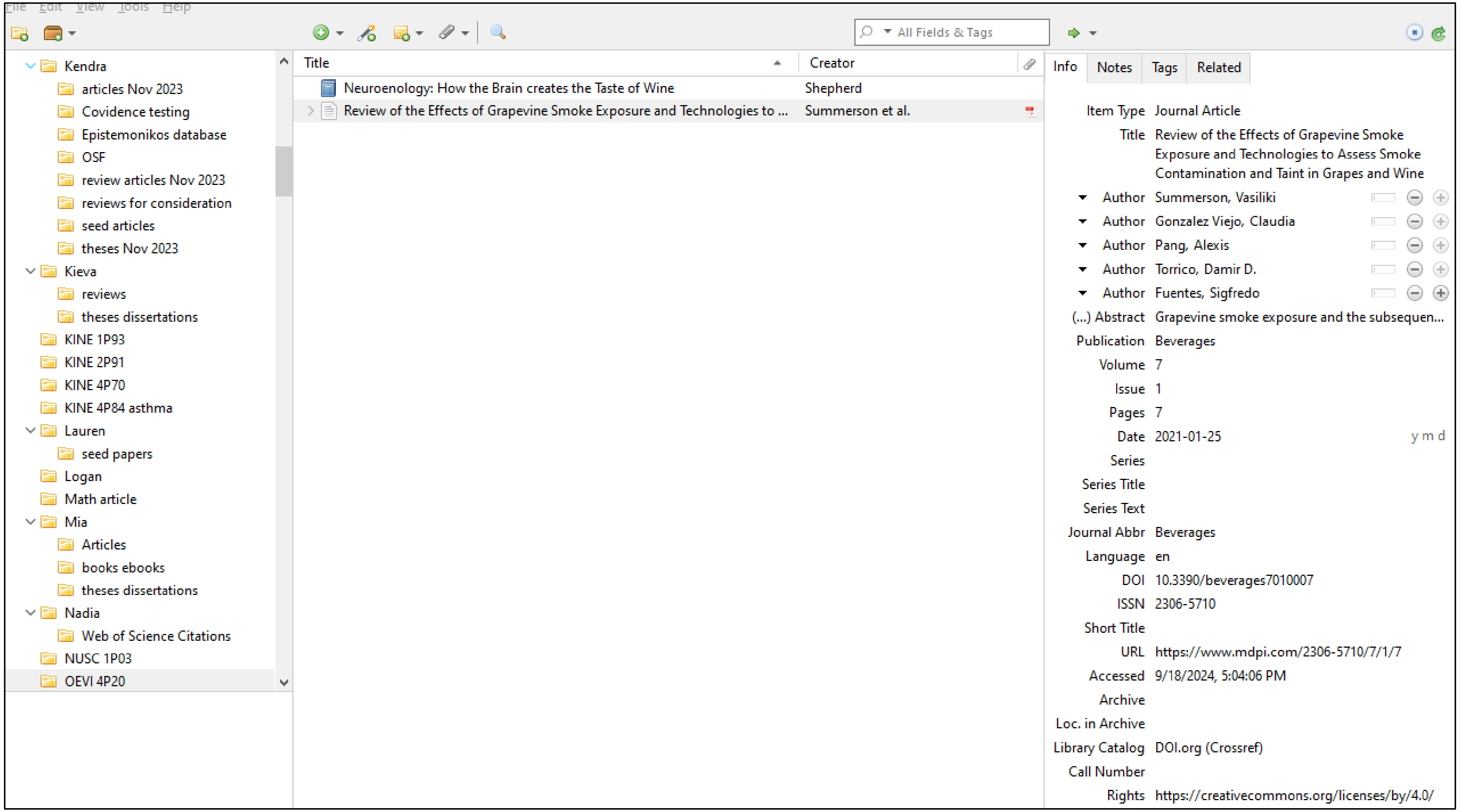

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Author	Gonzalez Viejo, Claudia
Author	Pang, Alexis
Author	Torrico, Damir D.
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(...) Abstract	Grapevine smoke exposure and the subsequen...
Publication	Beverages
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What databases would you search to find scholarly information on wine perception and/or sensory analysis?

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Techniques to resolve sensory characteristics of “smoke taint” found in cool-climate Cabernet wines?

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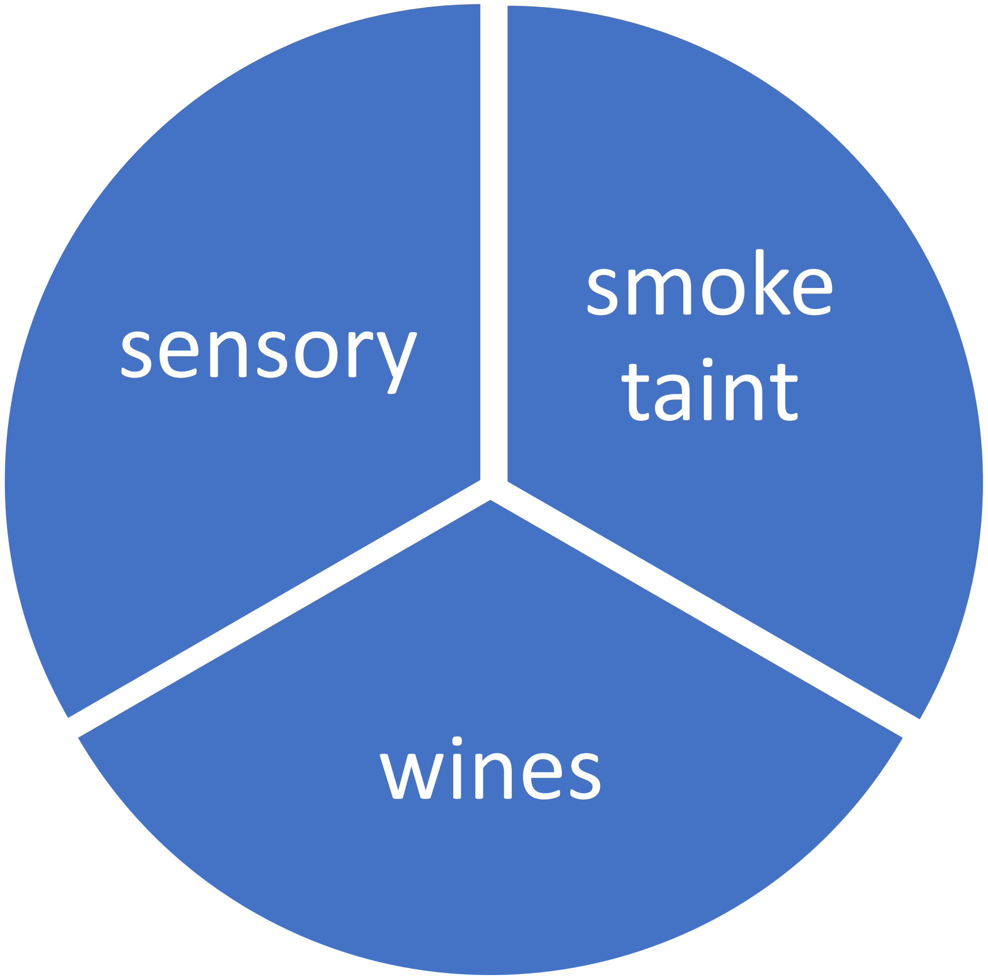
Techniques to resolve sensory characteristics of “smoke taint” found in cool-climate Cabernet wines?



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smoke taint

wines

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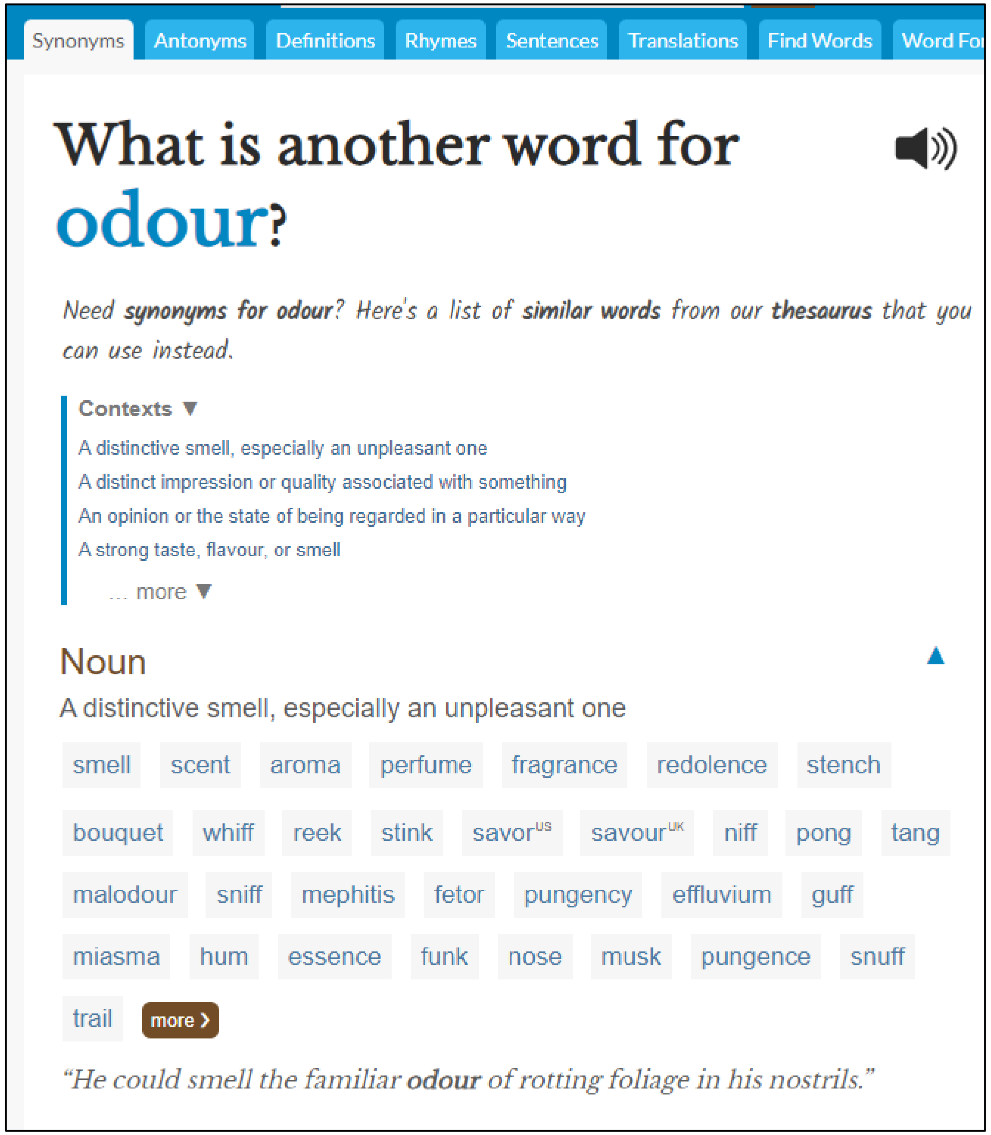


What is another word for odour?

*Need **synonyms for odour**? Here's a list of **similar words** from our **thesaurus** that you can use instead.*

Contexts ▼

A distinctive smell, especially an unpleasant one

A distinct impression or quality associated with something

An opinion or the state of being regarded in a particular way

A strong taste, flavour, or smell

… more ▼

Noun

A distinctive smell, especially an unpleasant one

smell scent aroma perfume fragrance redolence stench

bouquet whiff reek stink savor^{US} savour^{UK} niff pong tang

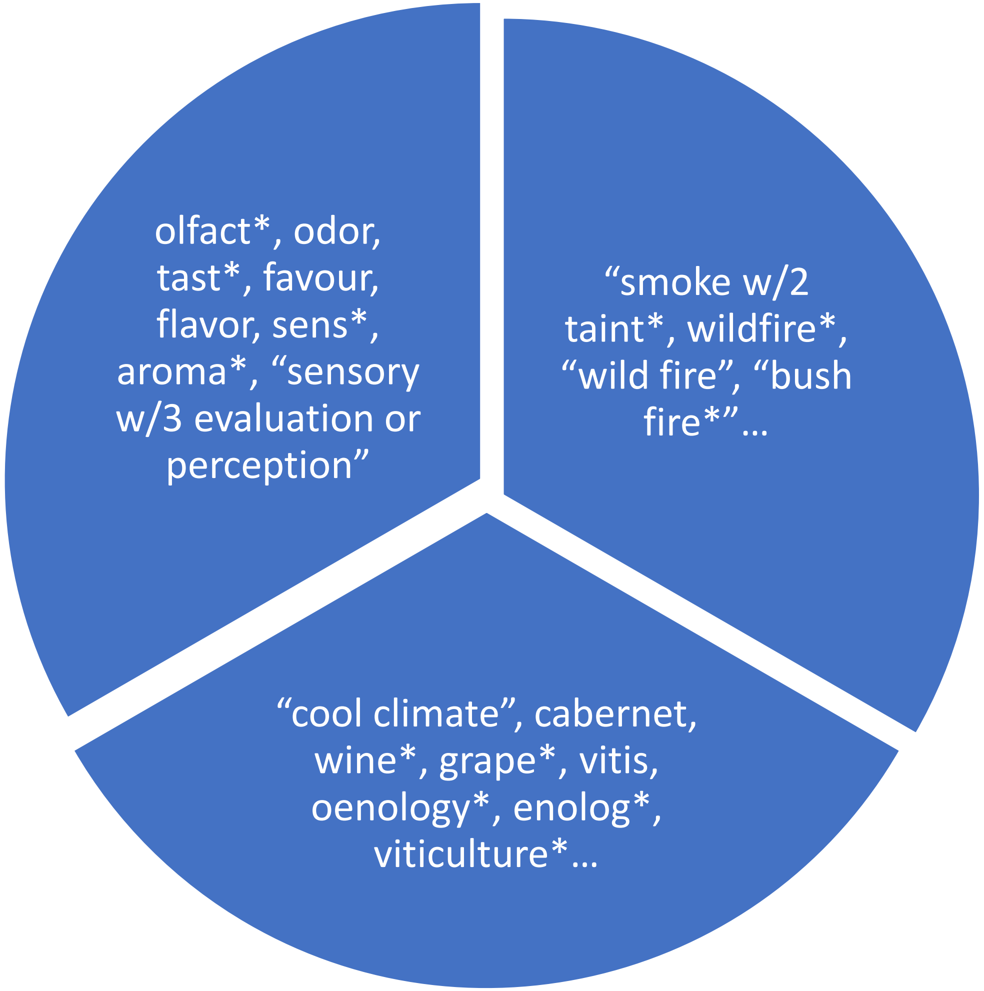
malodour sniff mephitis fetor pungency effluvium guff

miasma hum essence funk nose musk pungence snuff

trail

*“He could smell the familiar **odour** of rotting foliage in his nostrils.”*

Techniques to resolve sensory characteristics of “smoke taint” found in cool-climate Cabernet wines?



olfact*, odor, tast*, favour, flavor, sens*, aroma*, “sensory w/3 evaluation or perception”

“smoke w/2 taint*, wildfire*, “wild fire”, “bush fire*”…

“cool climate”, cabernet, wine*, grape*, vitis, oenology*, enolog*, viticulture*…

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Techniques to resolve sensory characteristics of
“smoke taint” found in cool-climate Cabernet wines?

1. olfact* or tast* or flavor or flavour or sens* or aroma* or “sensory w/3 evaluat*” or percept* w/3 evaluat* or profiling or palettes or character* or tast*…

AND

2. wine* or grape* or vitis* or oenology* or enolog* or cabernet

AND

3. bushfire* or “bush fire*” or wildfire* or “wild fire*” or smoke w/3 taint*

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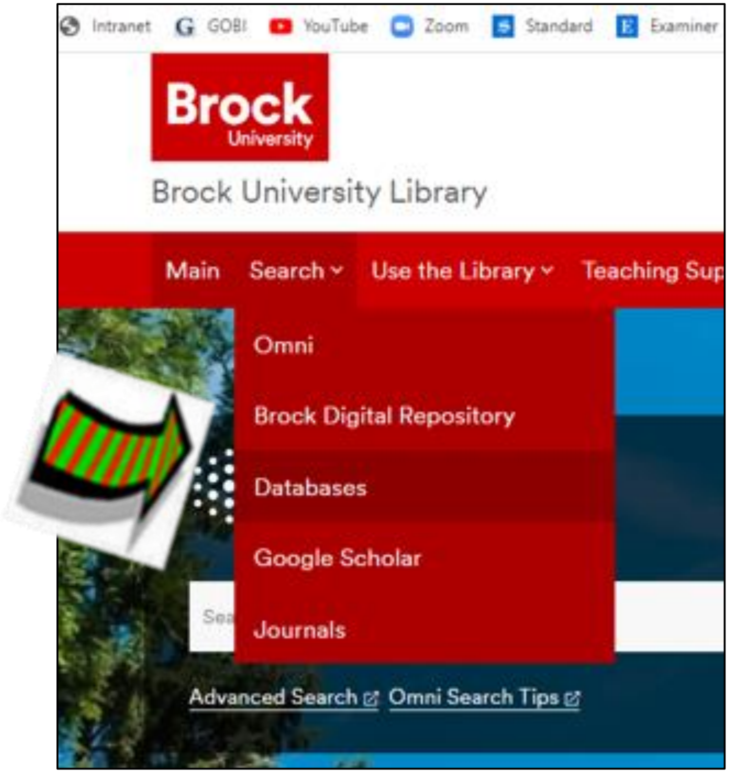

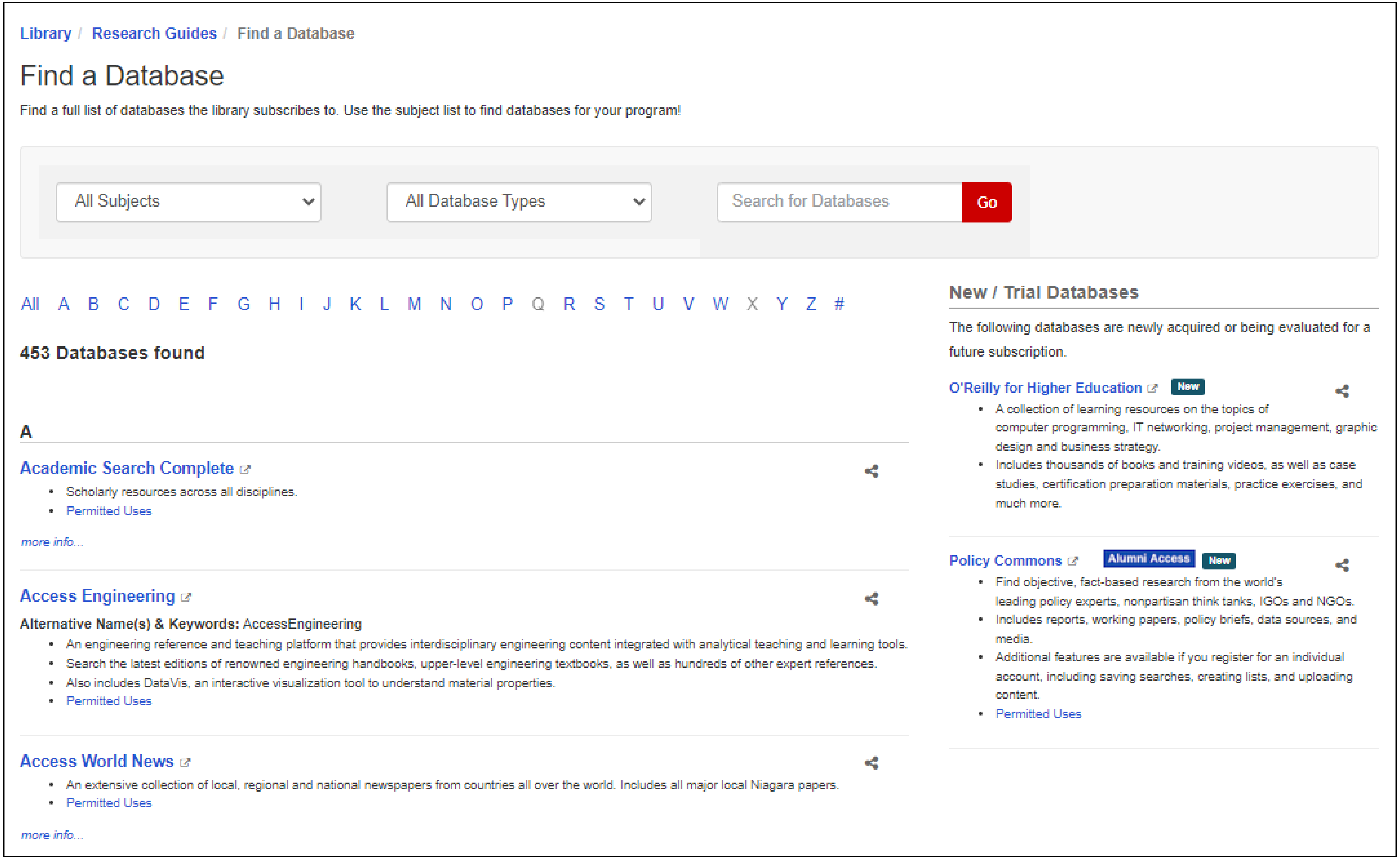
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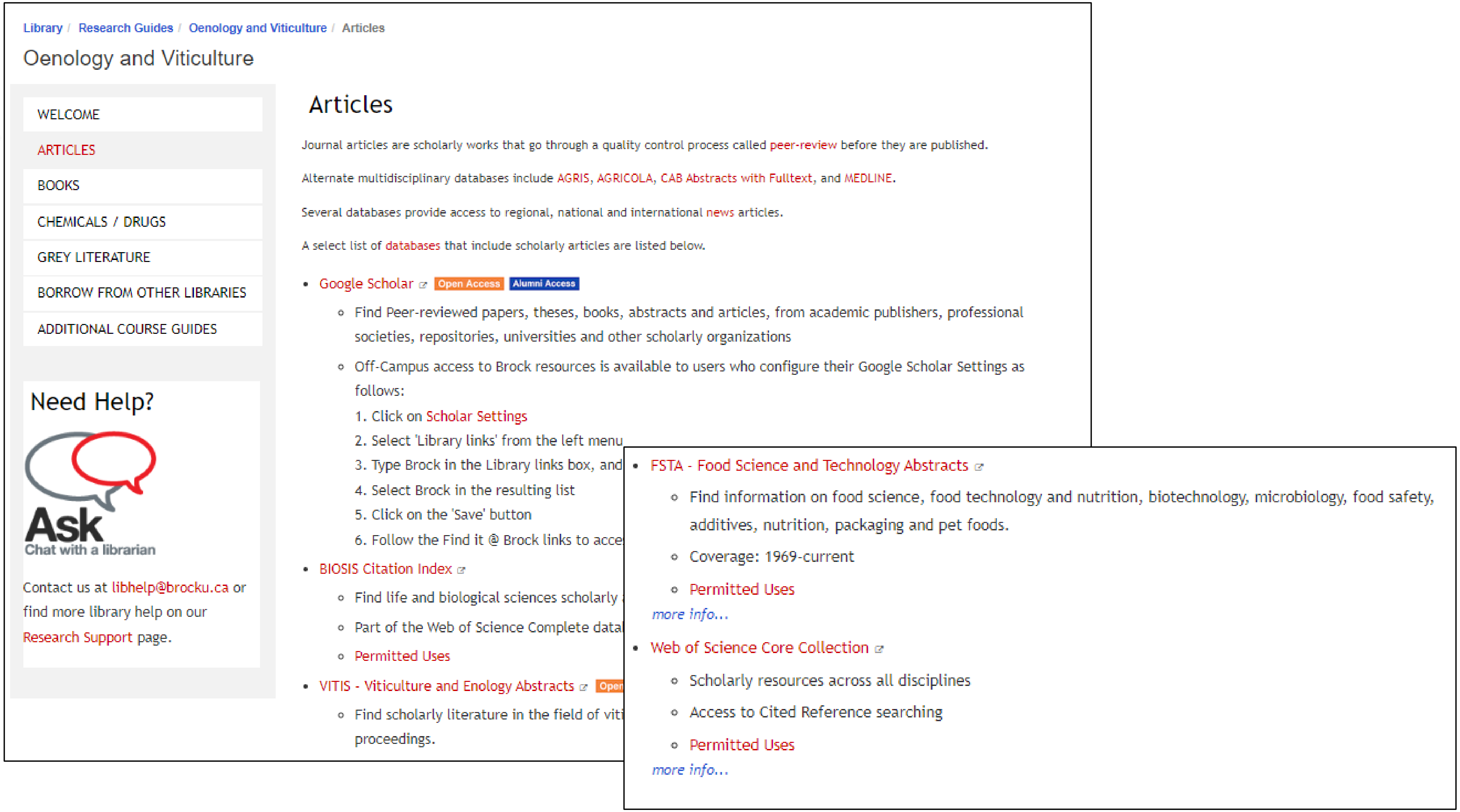

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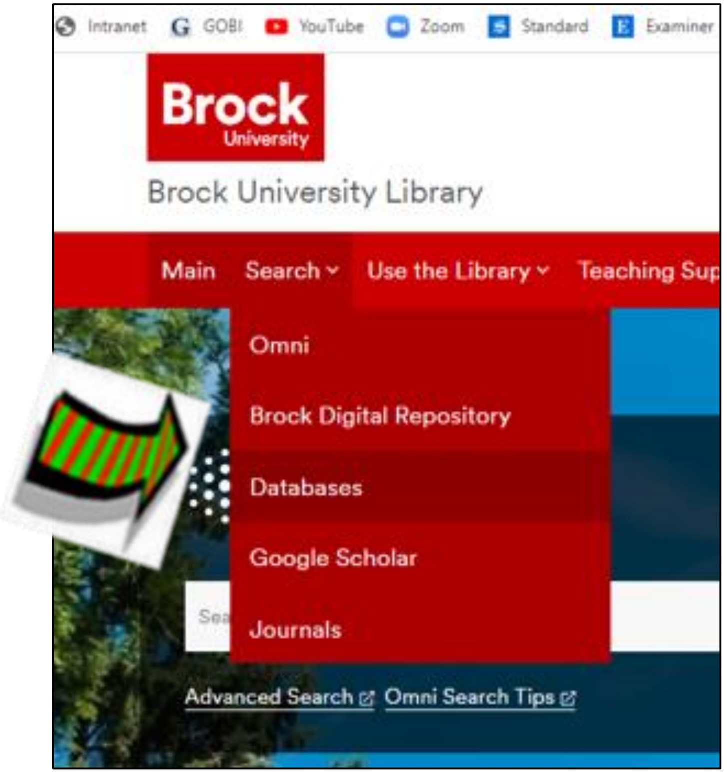

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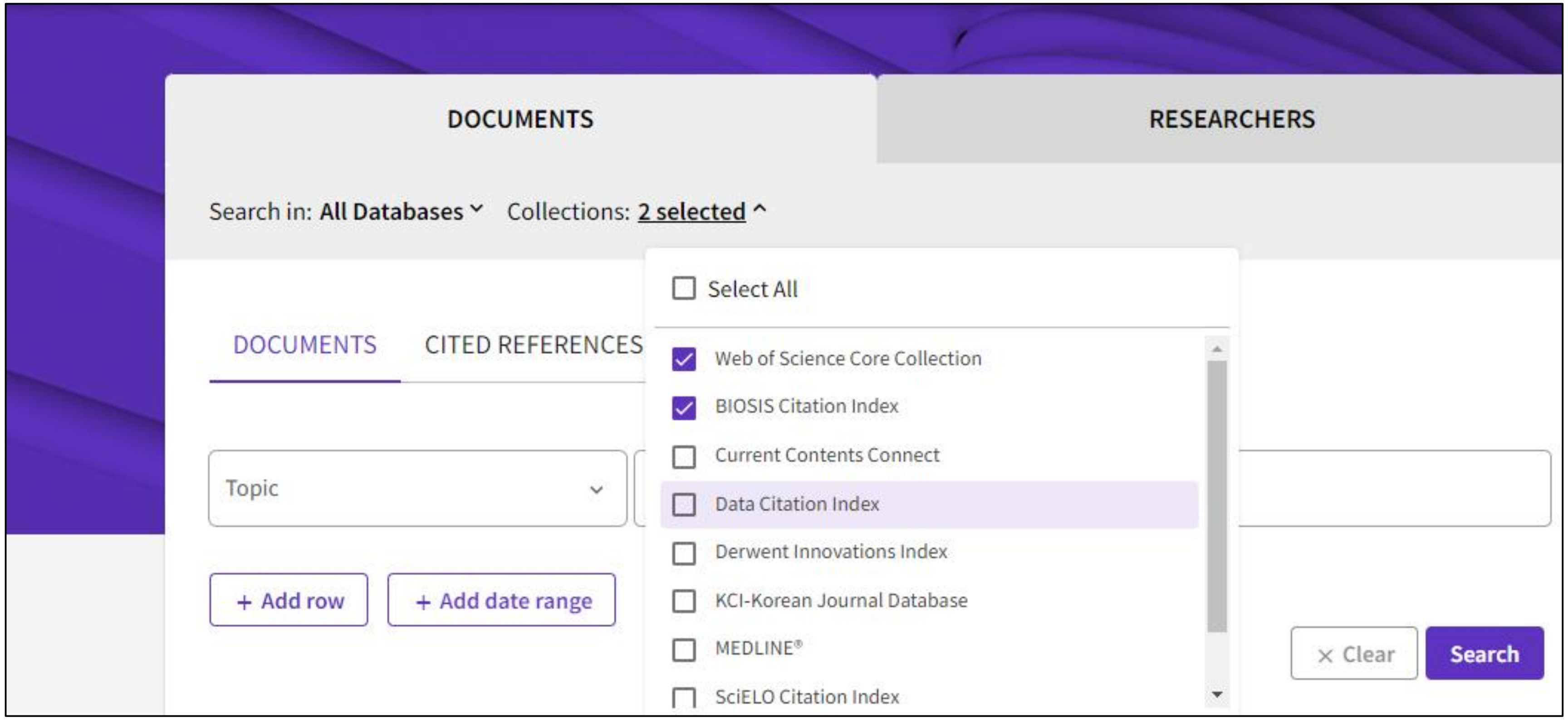

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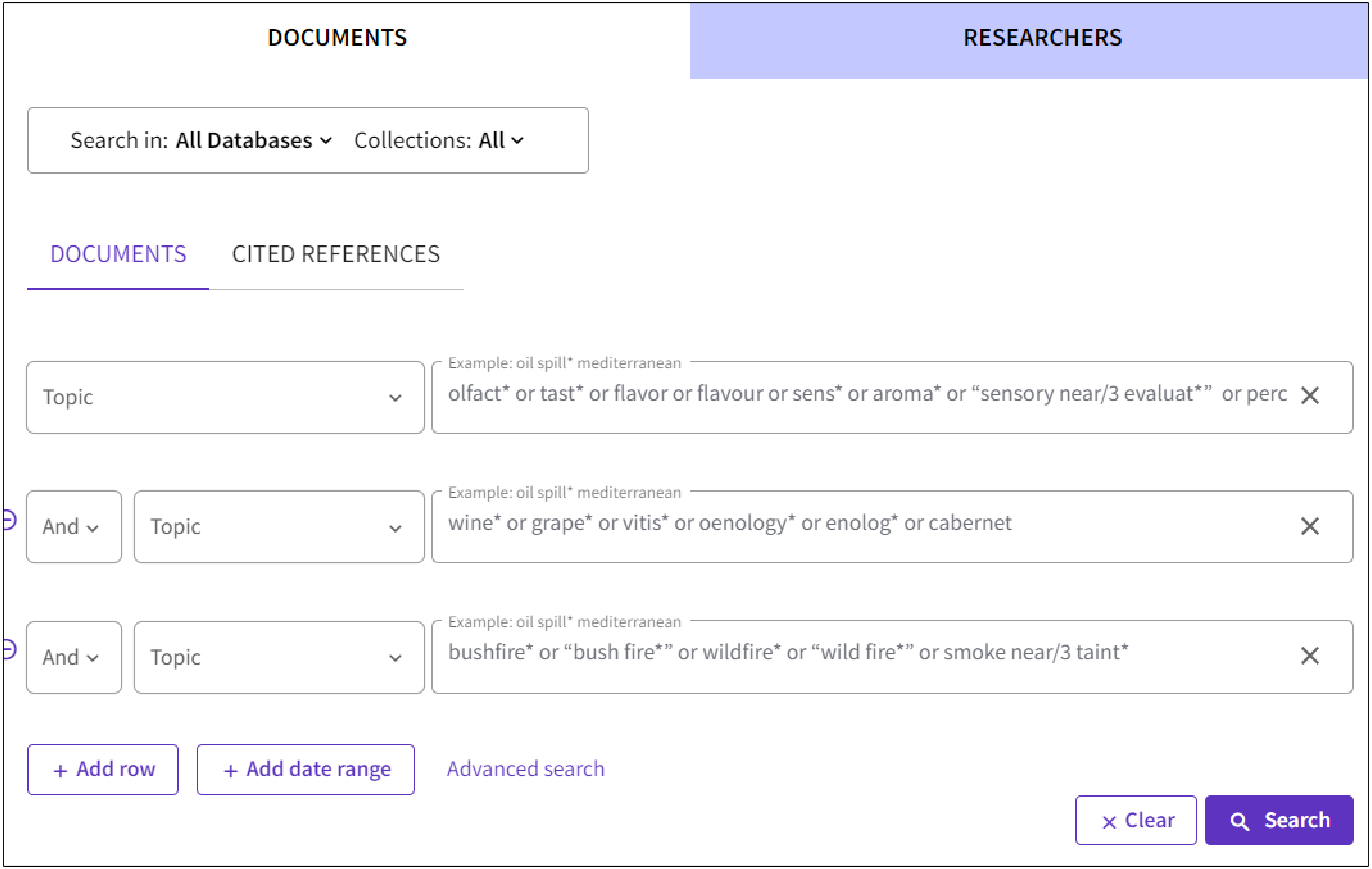

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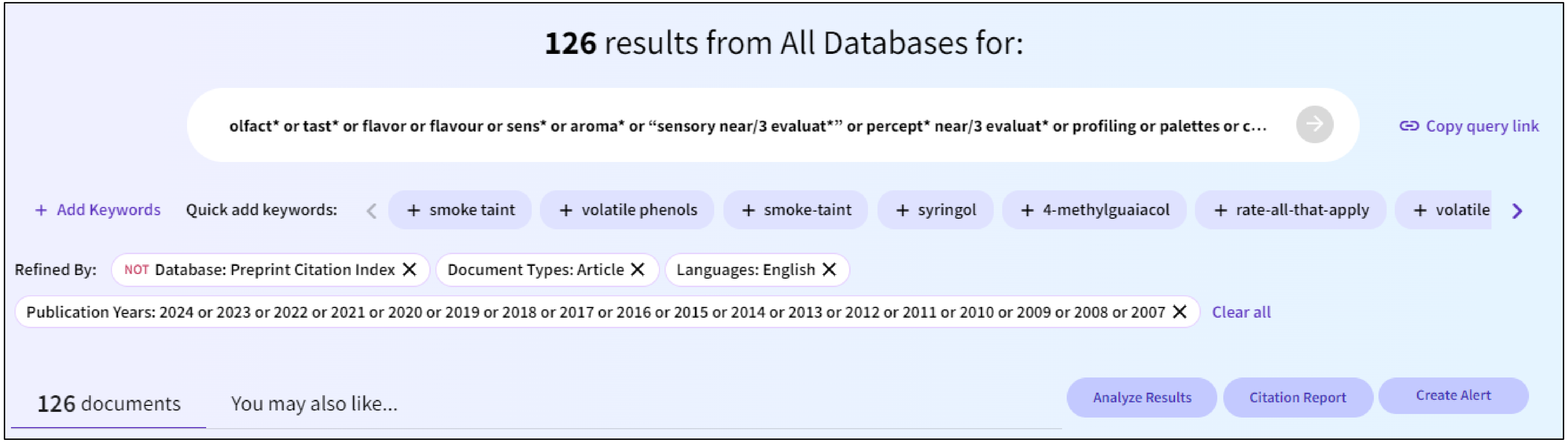

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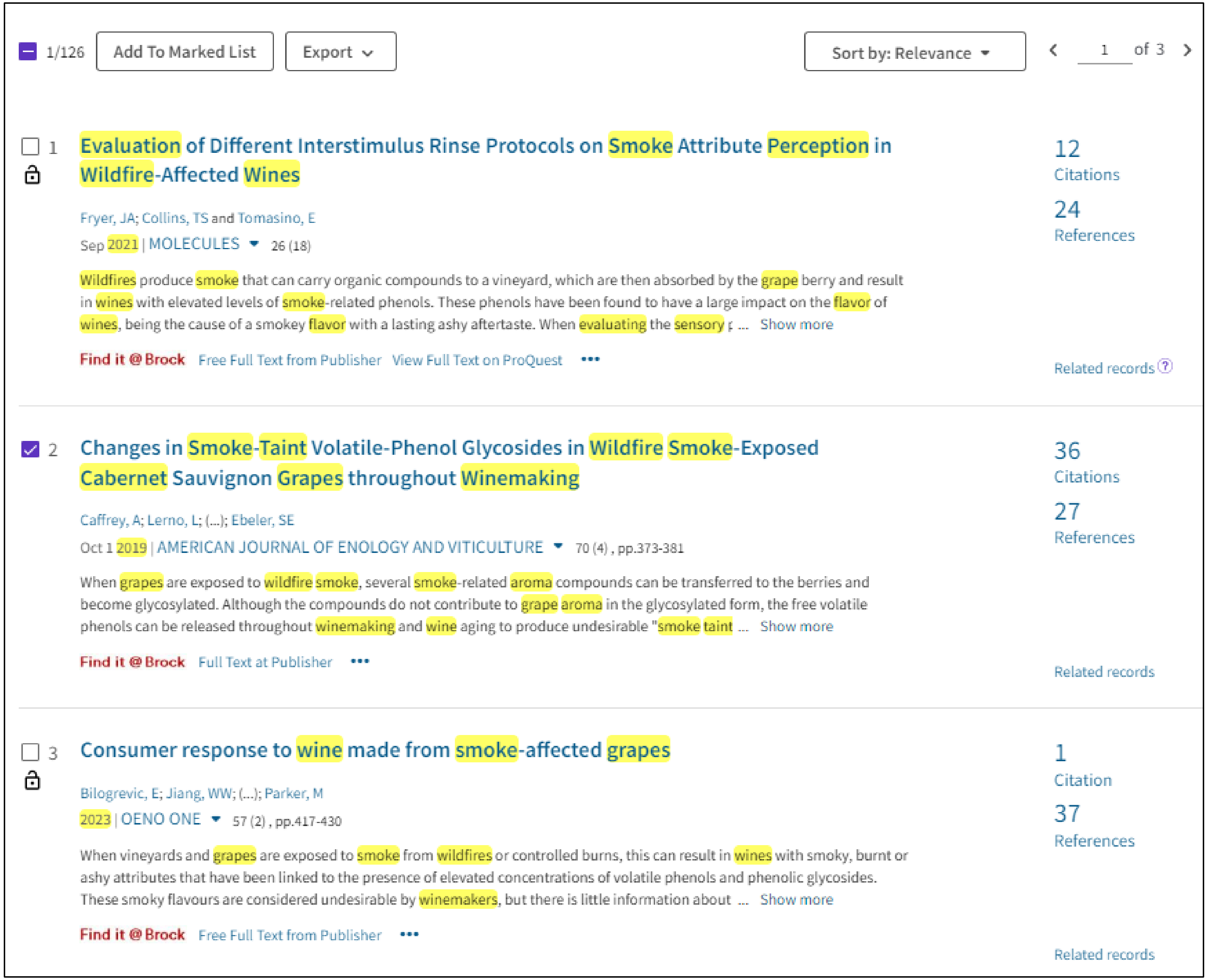

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Evaluation of Different Interstimulus Rinse Protocols on Smoke Attribute Perception in Wildfire-Affected Wines

Fryer, JA; Collins, TS and Tomasino, E

Sep 2021 | MOLECULES 26 (18)

Wildfires produce smoke that can carry organic compounds to a vineyard, which are then absorbed by the grape berry and result in wines with elevated levels of smoke-related phenols. These phenols have been found to have a large impact on the flavor of wines, being the cause of a smokey flavor with a lasting ashy aftertaste. When evaluating the sensory p ... Show more

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Changes in Smoke-Taint Volatile-Phenol Glycosides in Wildfire Smoke-Exposed Cabernet Sauvignon Grapes throughout Winemaking

Caffrey, A; Lerno, L; (...); Ebeler, SE

Oct 1 2019 | AMERICAN JOURNAL OF ENOLOGY AND VITICULTURE 70 (4) , pp.373-381

When grapes are exposed to wildfire smoke, several smoke-related aroma compounds can be transferred to the berries and become glycosylated. Although the compounds do not contribute to grape aroma in the glycosylated form, the free volatile phenols can be released throughout winemaking and wine aging to produce undesirable "smoke taint ... Show more

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Consumer response to wine made from smoke-affected grapes

Bilogrevic, E; Jiang, WW; (...); Parker, M

2023 | OENO ONE 57 (2) , pp.417-430

When vineyards and grapes are exposed to smoke from wildfires or controlled burns, this can result in wines with smoky, burnt or ashy attributes that have been linked to the presence of elevated concentrations of volatile phenols and phenolic glycosides. These smoky flavours are considered undesirable by winemakers, but there is little information about ... Show more

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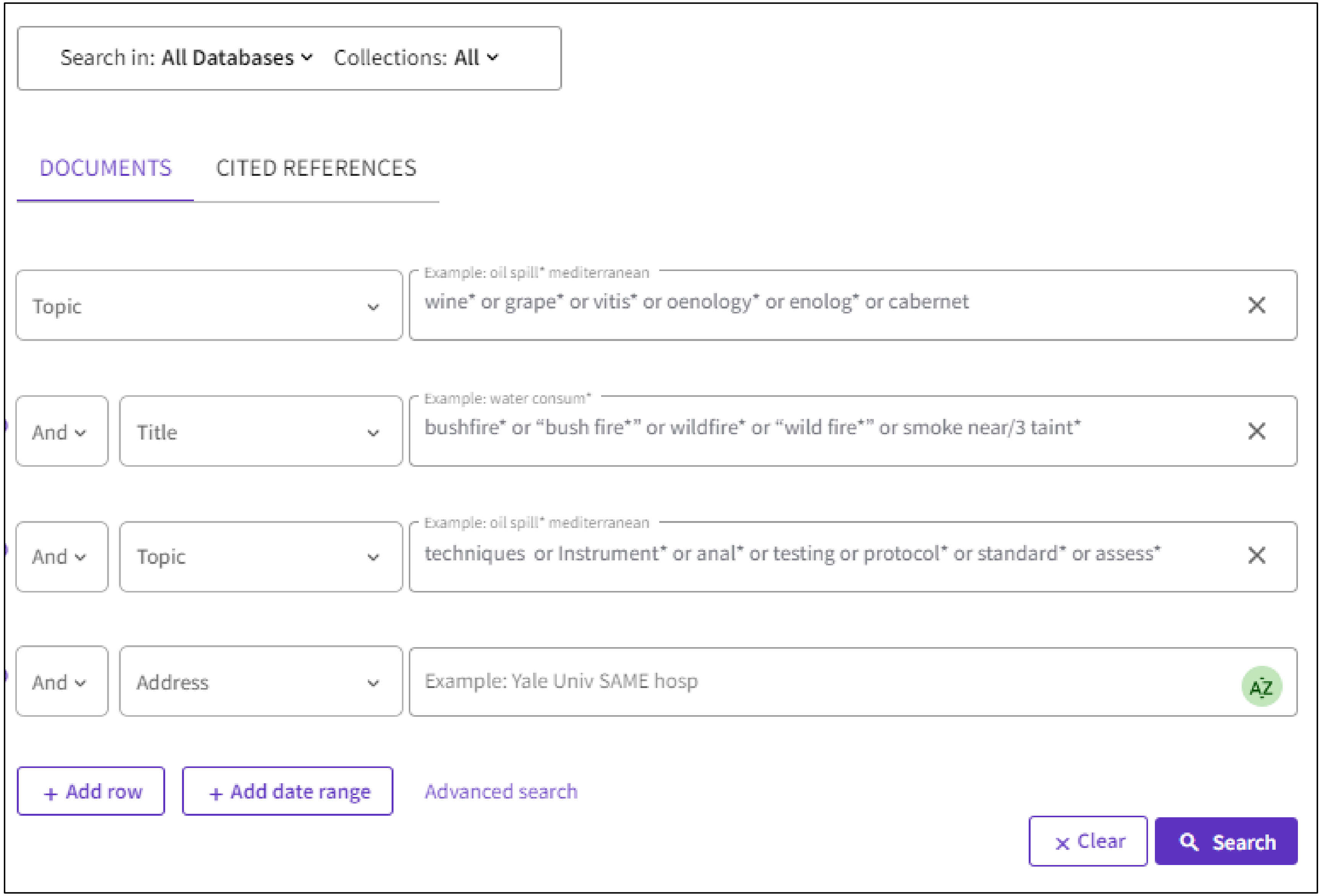

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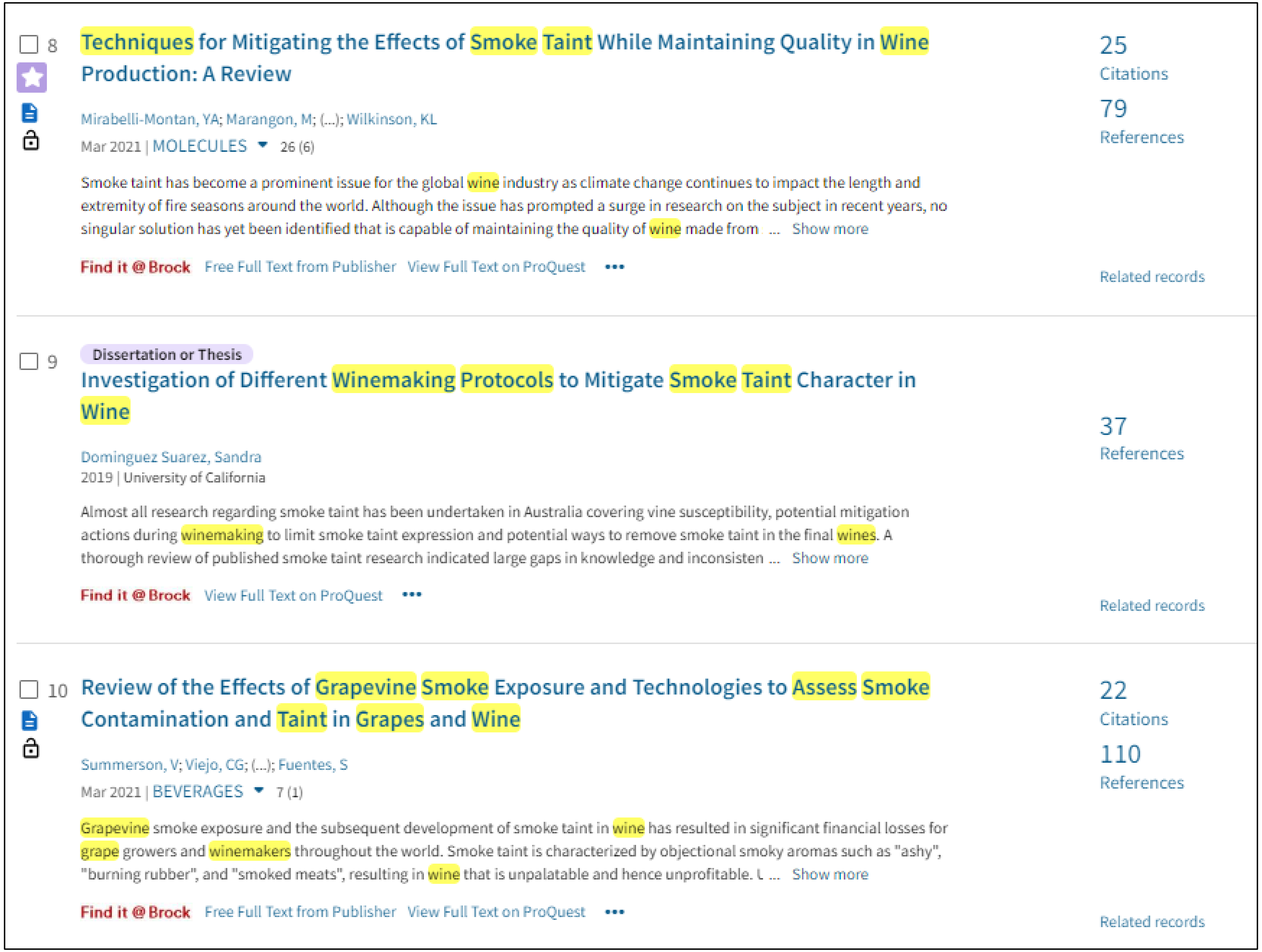

☐ 8 **Techniques for Mitigating the Effects of Smoke Taint While Maintaining Quality in Wine Production: A Review**

Mirabelli-Montan, YA; Marangon, M; (...); Wilkinson, KL

Mar 2021 | MOLECULES ▾ 26 (6)

Smoke taint has become a prominent issue for the global wine industry as climate change continues to impact the length and extremity of fire seasons around the world. Although the issue has prompted a surge in research on the subject in recent years, no singular solution has yet been identified that is capable of maintaining the quality of wine made from ... Show more

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Investigation of Different Winemaking Protocols to Mitigate Smoke Taint Character in Wine

Dominguez Suarez, Sandra

2019 | University of California

Almost all research regarding smoke taint has been undertaken in Australia covering vine susceptibility, potential mitigation actions during winemaking to limit smoke taint expression and potential ways to remove smoke taint in the final wines. A thorough review of published smoke taint research indicated large gaps in knowledge and inconsisten ... Show more

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☐ 10 **Review of the Effects of Grapevine Smoke Exposure and Technologies to Assess Smoke Contamination and Taint in Grapes and Wine**

Summerson, V; Viejo, CG; (...); Fuentes, S

Mar 2021 | BEVERAGES ▾ 7 (1)

Grapevine smoke exposure and the subsequent development of smoke taint in wine has resulted in significant financial losses for grape growers and winemakers throughout the world. Smoke taint is characterized by objectional smoky aromas such as "ashy", "burning rubber", and "smoked meats", resulting in wine that is unpalatable and hence unprofitable. U ... Show more

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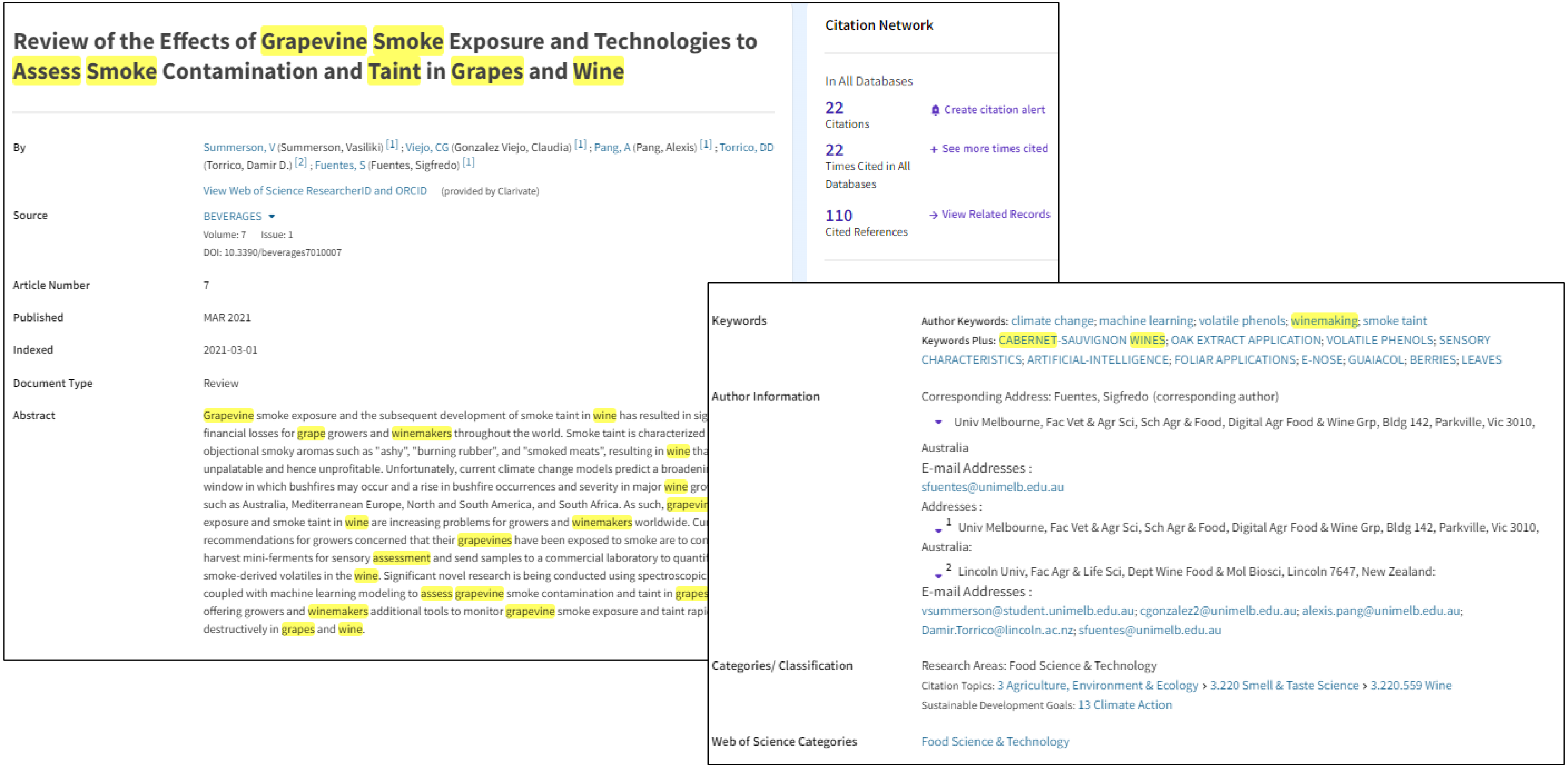

Review of the Effects of Grapevine Smoke Exposure and Technologies to Assess Smoke Contamination and Taint in Grapes and Wine

By Summerson, V (Summerson, Vasiliki) [1] ; Viejo, CG (Gonzalez Viejo, Claudia) [1] ; Pang, A (Pang, Alexis) [1] ; Torrico, DD (Torrico, Damir D.) [2] ; Fuentes, S (Fuentes, Sigfredo) [1]

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window in which bushfires may occur and a rise in bushfire occurrences and severity in major wine gro
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smoke-derived volatiles in the wine. Significant novel research is being conducted using spectroscopic
coupled with machine learning modeling to assess grapevine smoke contamination and taint in grapes
offering growers and winemakers additional tools to monitor grapevine smoke exposure and taint rapi
destructively in grapes and wine.

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Author Information
Corresponding Address: Fuentes, Sigfredo (corresponding author)
Univ Melbourne, Fac Vet & Agr Sci, Sch Agr & Food, Digital Agr Food & Wine Grp, Bldg 142, Parkville, Vic 3010, Australia
E-mail Addresses :
sfuentes@unimelb.edu.au
Addresses :
[1] Univ Melbourne, Fac Vet & Agr Sci, Sch Agr & Food, Digital Agr Food & Wine Grp, Bldg 142, Parkville, Vic 3010, Australia:
[2] Lincoln Univ, Fac Agr & Life Sci, Dept Wine Food & Mol Biosci, Lincoln 7647, New Zealand:
E-mail Addresses :
vsummerson@student.unimelb.edu.au; cgonzalez2@unimelb.edu.au; alexis.pang@unimelb.edu.au; Damir.Torrico@lincoln.ac.nz; sfuentes@unimelb.edu.au

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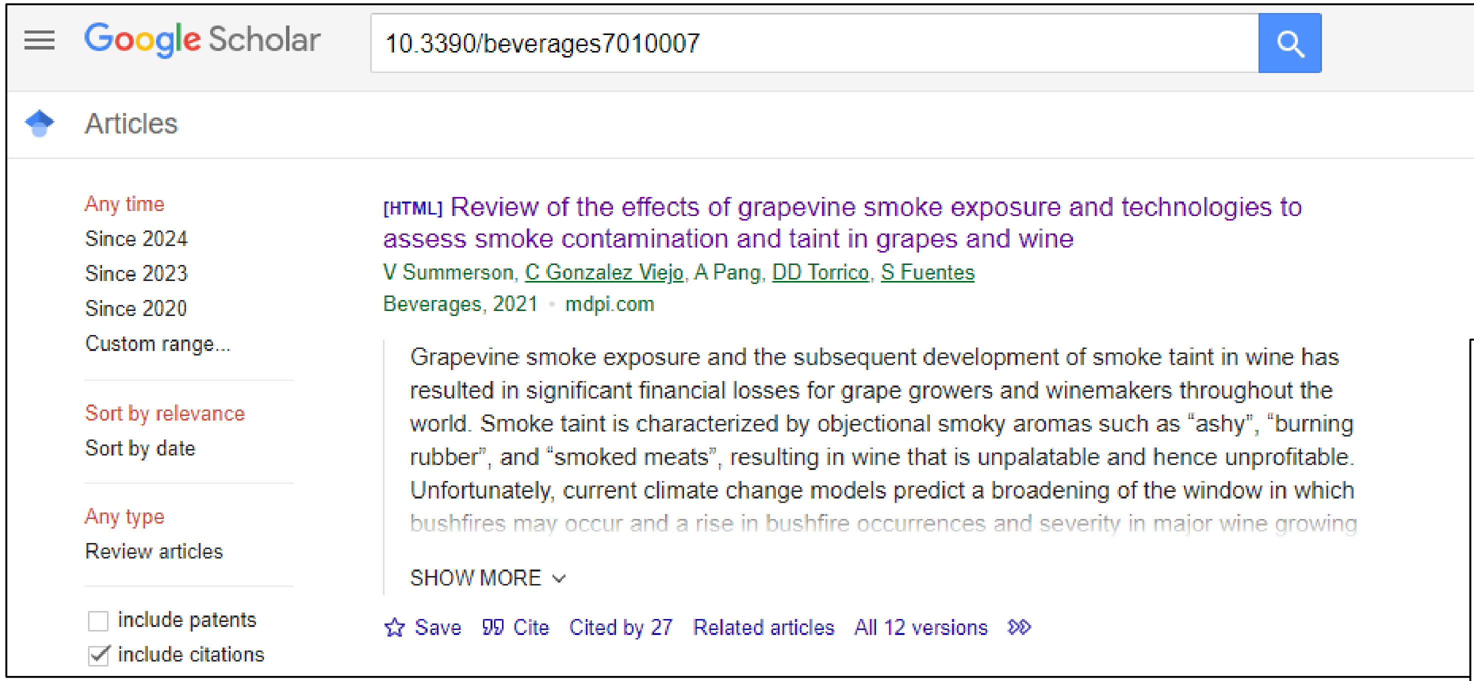

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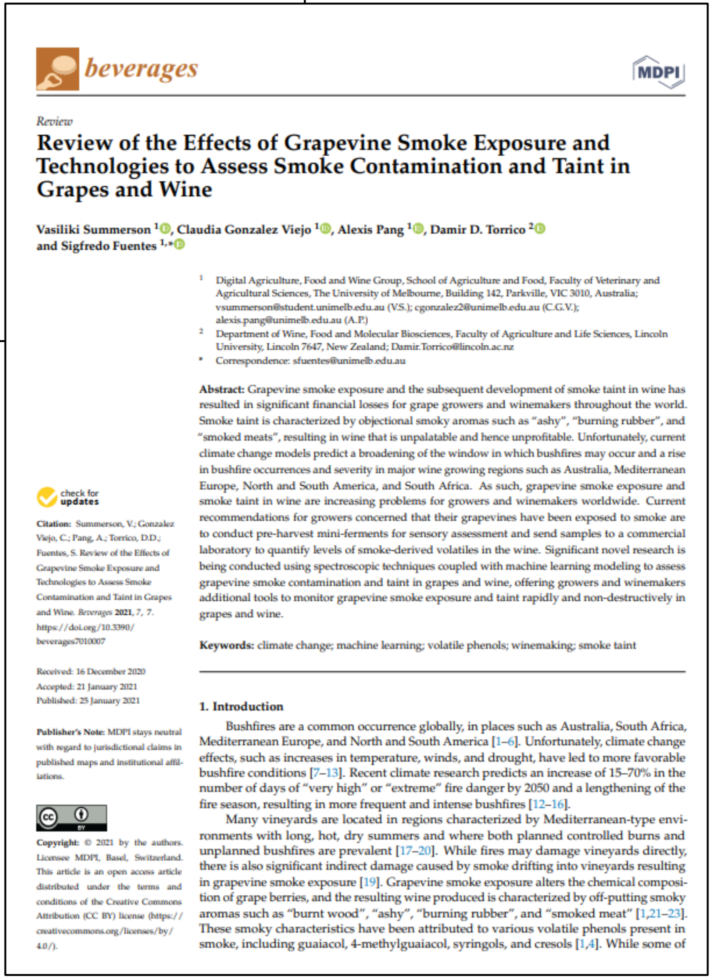
[HTML] Review of the effects of grapevine smoke exposure and technologies to assess smoke contamination and taint in grapes and wine

V Summerson, C Gonzalez Viejo, A Pang, DD Torrico, S Fuentes

Beverages, 2021 · mdpi.com

Grapevine smoke exposure and the subsequent development of smoke taint in wine has resulted in significant financial losses for grape growers and winemakers throughout the world. Smoke taint is characterized by objectional smoky aromas such as "ashy", "burning rubber", and "smoked meats", resulting in wine that is unpalatable and hence unprofitable. Unfortunately, current climate change models predict a broadening of the window in which bushfires may occur and a rise in bushfire occurrences and severity in major wine growing



Review

Review of the Effects of Grapevine Smoke Exposure and Technologies to Assess Smoke Contamination and Taint in Grapes and Wine

Vasiliki Summerson [1], Claudia Gonzalez Viejo [1], Alexis Pang [1], Damir D. Torrico [2] and Sigfredo Fuentes [1,*]

[1] Digital Agriculture, Food and Wine Group, School of Agriculture and Food, Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Building 142, Parkville, VIC 3010, Australia; vsummerson@student.unimelb.edu.au (V.S.); cgonzalez2@unimelb.edu.au (C.G.V.); alexis.pang@unimelb.edu.au (A.P.)

[2] Department of Wine, Food and Molecular Biosciences, Faculty of Agriculture and Life Sciences, Lincoln University, Lincoln 7647, New Zealand; Damir.Torrico@lincoln.ac.nz

* Correspondence: sfuentes@unimelb.edu.au

Abstract: Grapevine smoke exposure and the subsequent development of smoke taint in wine has resulted in significant financial losses for grape growers and winemakers throughout the world. Smoke taint is characterized by objectional smoky aromas such as "ashy", "burning rubber", and "smoked meats", resulting in wine that is unpalatable and hence unprofitable. Unfortunately, current climate change models predict a broadening of the window in which bushfires may occur and a rise in bushfire occurrences and severity in major wine growing regions such as Australia, Mediterranean Europe, North and South America, and South Africa. As such, grapevine smoke exposure and smoke taint in wine are increasing problems for growers and winemakers worldwide. Current recommendations for growers concerned that their grapevines have been exposed to smoke are to conduct pre-harvest mini-ferments for sensory assessment and send samples to a commercial laboratory to quantify levels of smoke-derived volatiles in the wine. Significant novel research is being conducted using spectroscopic techniques coupled with machine learning modeling to assess grapevine smoke contamination and taint in grapes and wine, offering growers and winemakers additional tools to monitor grapevine smoke exposure and taint rapidly and non-destructively in grapes and wine.

Keywords: climate change; machine learning; volatile phenols; winemaking; smoke taint

Citation: Summerson, V.; Gonzalez Viejo, C.; Pang, A.; Torrico, D.D.; Fuentes, S. Review of the Effects of Grapevine Smoke Exposure and Technologies to Assess Smoke Contamination and Taint in Grapes and Wine. *Beverages* **2021**, *7*, 7. https://doi.org/10.3390/beverages7010007

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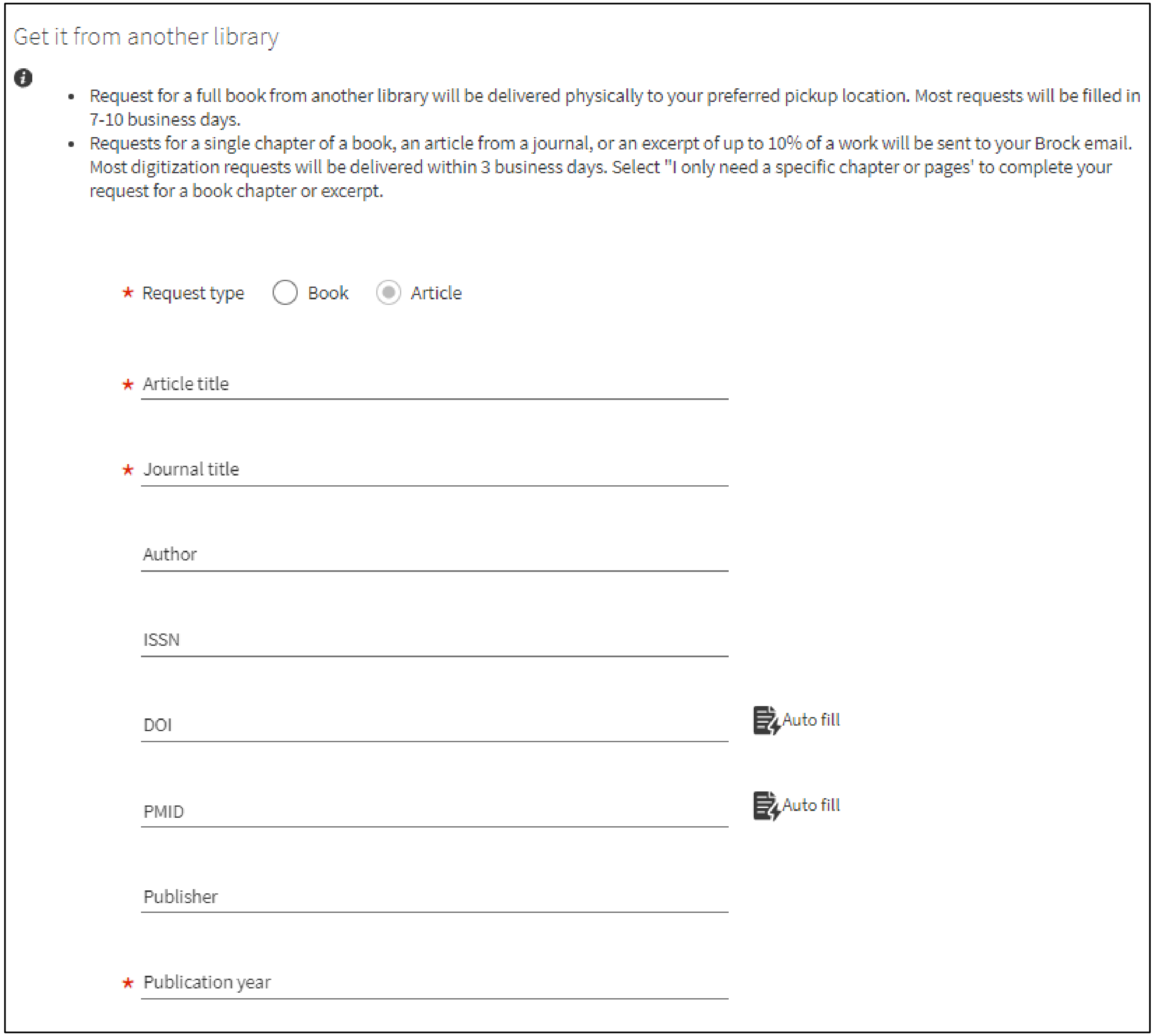
1. Introduction

Bushfires are a common occurrence globally, in places such as Australia, South Africa, Mediterranean Europe, and North and South America [1–6]. Unfortunately, climate change effects, such as increases in temperature, winds, and drought, have led to more favorable bushfire conditions [7–13]. Recent climate research predicts an increase of 15–70% in the number of days of "very high" or "extreme" fire danger by 2050 and a lengthening of the fire season, resulting in more frequent and intense bushfires [12–16].

Many vineyards are located in regions characterized by Mediterranean-type environments with long, hot, dry summers and where both planned controlled burns and unplanned bushfires are prevalent [17–20]. While fires may damage vineyards directly, there is also significant indirect damage caused by smoke drifting into vineyards resulting in grapevine smoke exposure [19]. Grapevine smoke exposure alters the chemical composition of grape berries, and the resulting wine produced is characterized by off-putting smoky aromas such as "burnt wood", "ashy", "burning rubber", and "smoked meat" [1,21–23]. These smoky characteristics have been attributed to various volatile phenols present in smoke, including guaiacol, 4-methylguaiacol, syringols, and cresols [1,4]. While some of



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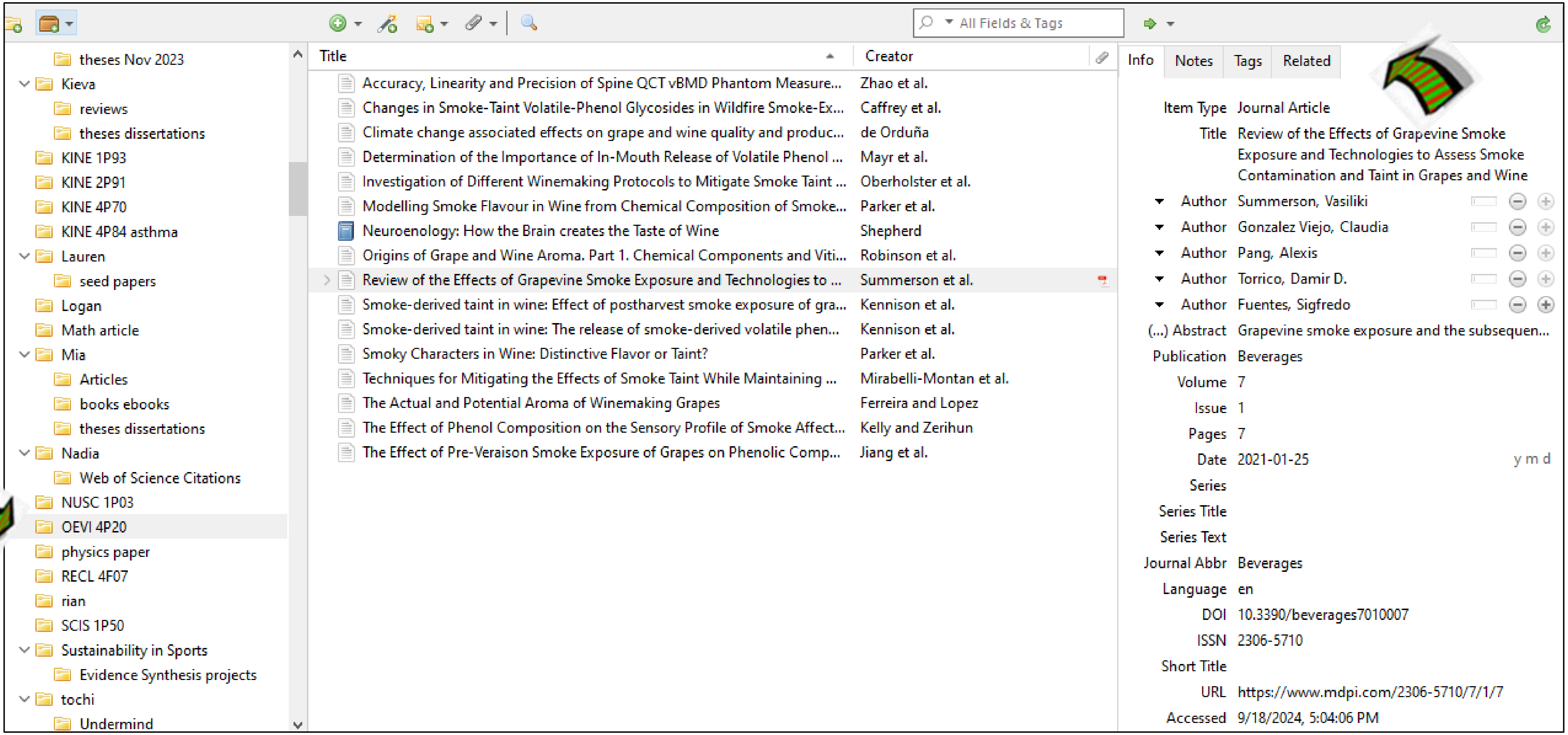

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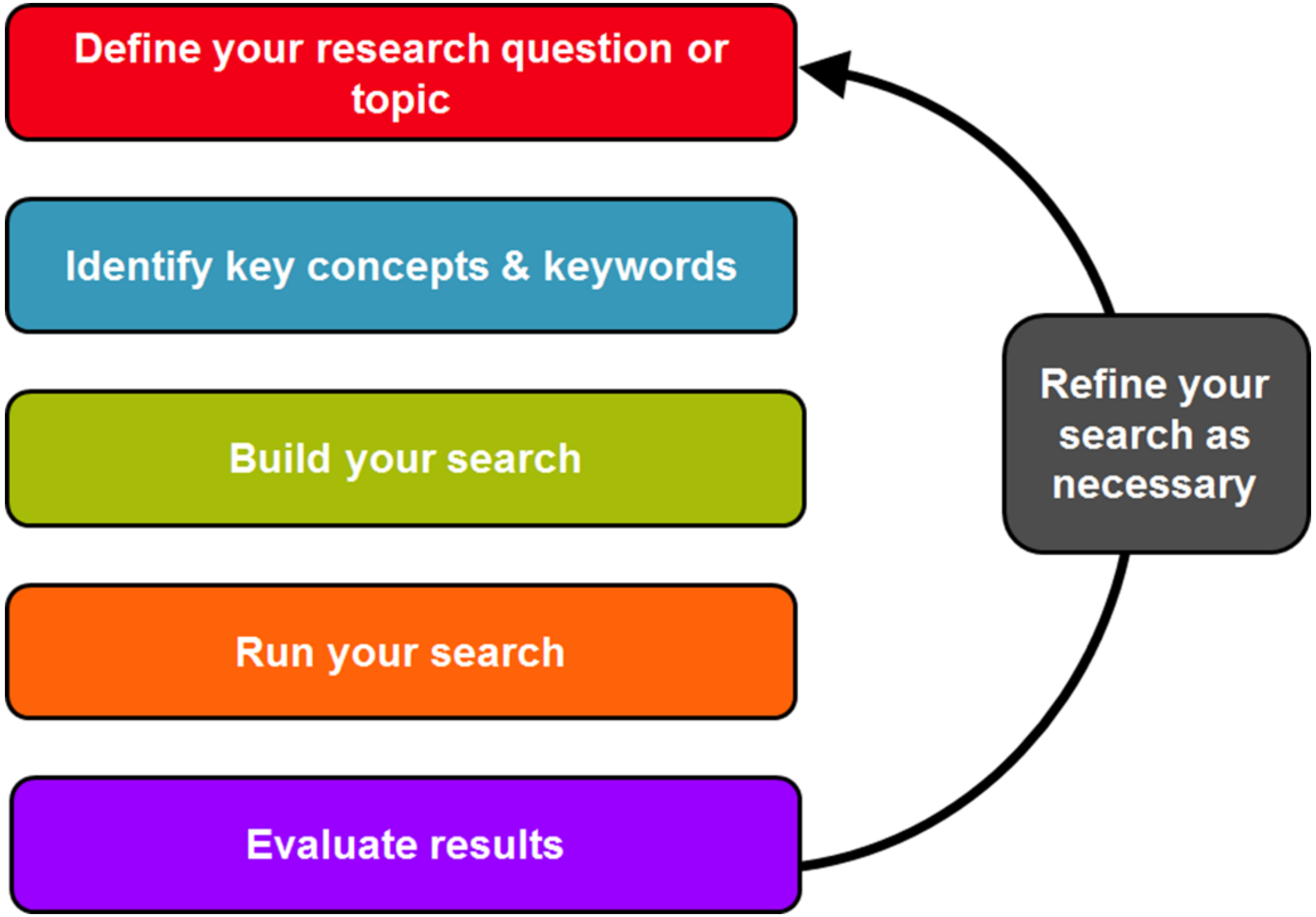

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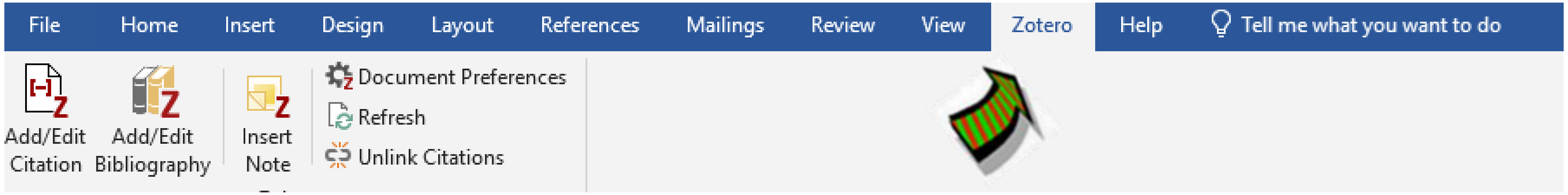

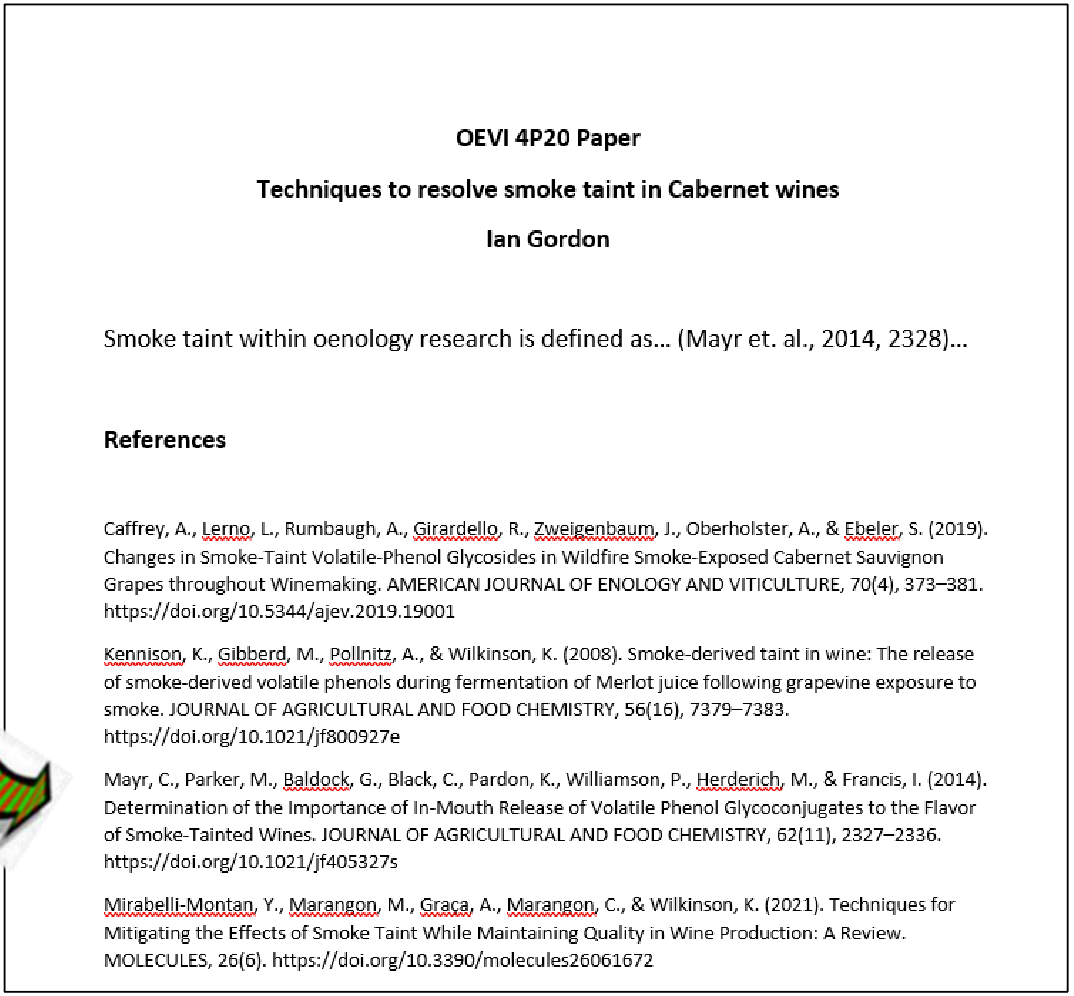

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Techniques to resolve smoke taint in Cabernet wines

Ian Gordon

Smoke taint within oenology research is defined as… (Mayr et. al., 2014, 2328)…

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Caffrey, A., Lerno, L., Rumbaugh, A., Girardello, R., Zweigenbaum, J., Oberholster, A., & Ebeler, S. (2019). Changes in Smoke-Taint Volatile-Phenol Glycosides in Wildfire Smoke-Exposed Cabernet Sauvignon Grapes throughout Winemaking. AMERICAN JOURNAL OF ENOLOGY AND VITICULTURE, 70(4), 373–381. https://doi.org/10.5344/ajev.2019.19001

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- Citation management
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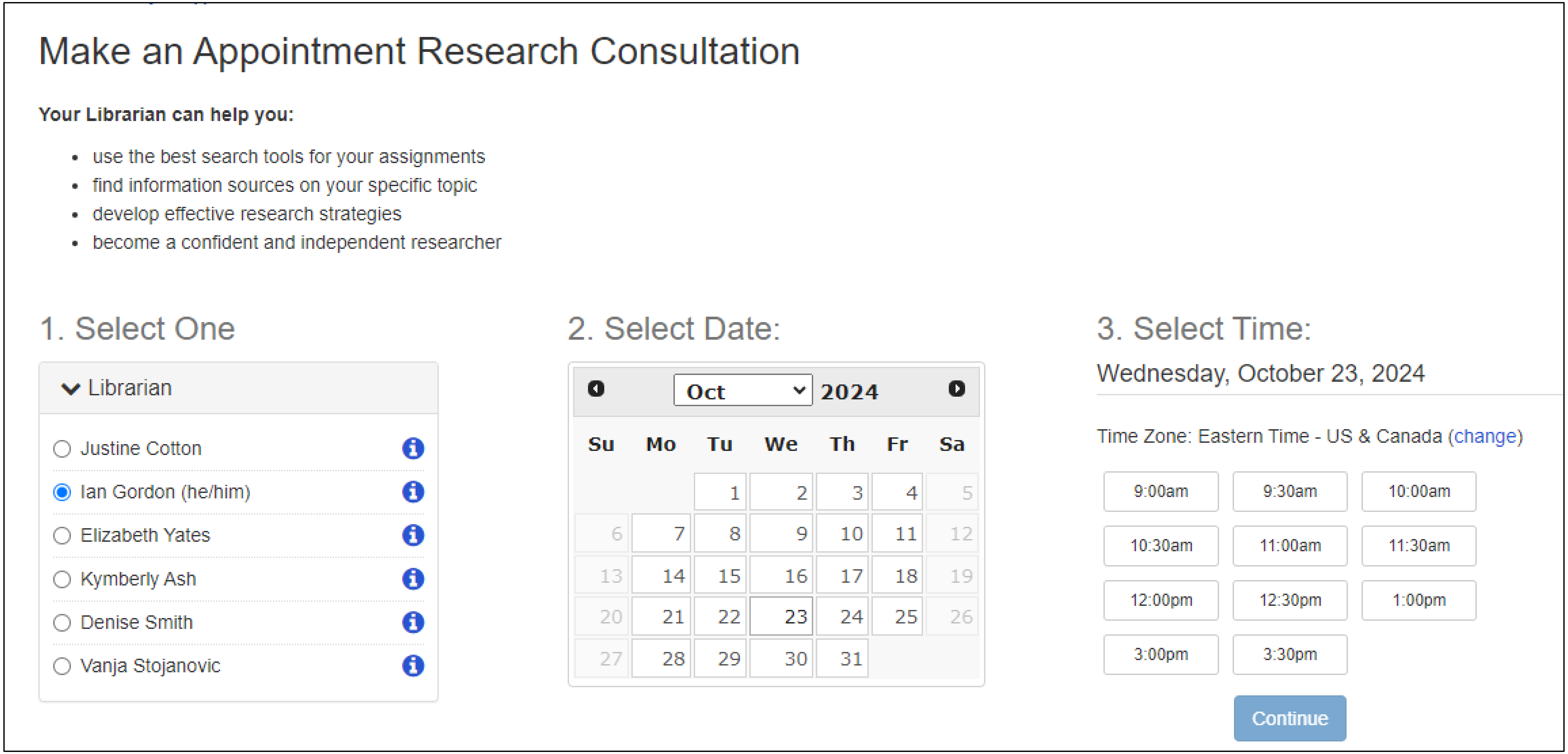

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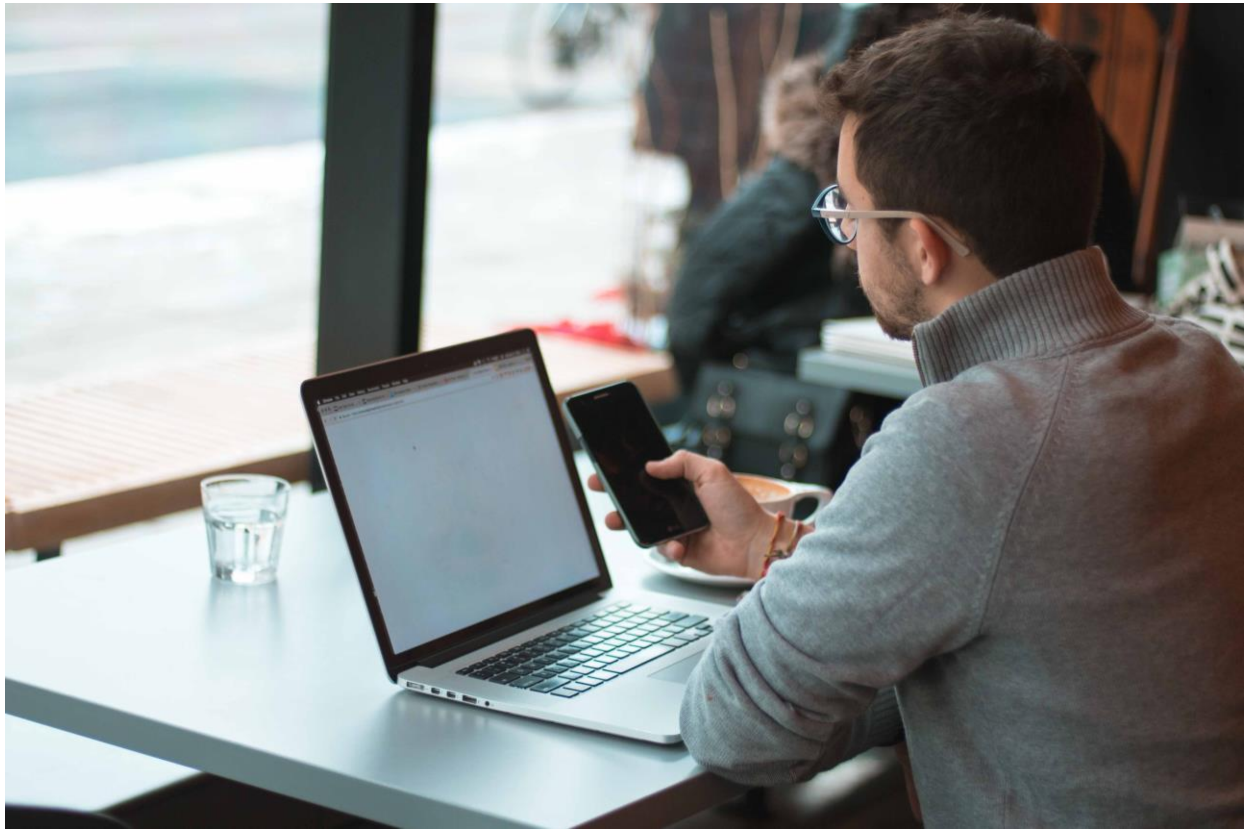
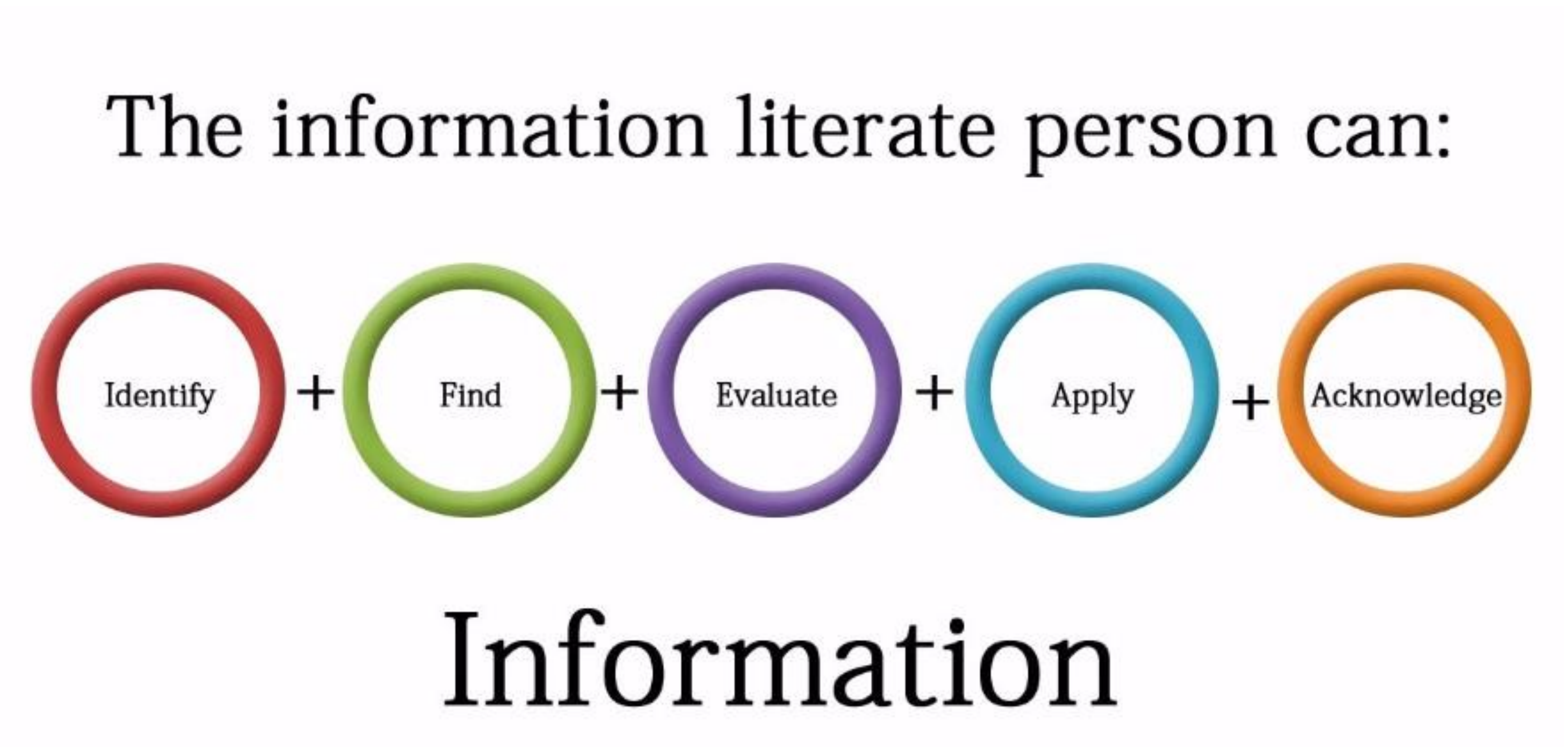
Wednesday, October 23, 2024

Time Zone: Eastern Time - US & Canada (change)



Man sitting near table with laptop photo by Joseph Frank on Unsplash



The information literate person can:

Identify + Find + Evaluate + Apply + Acknowledge

Information

https://aau.ac.ae/en/blog/ten-signs-to-know-if-you-are-information-literate

Ian Gordon

Teaching & Learning Librarian
igordon@brocku.ca

One thing I learned today.